PRACTICAL

VETERINARY ADVICE

FOR

STOCKOWNERS

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PRACTICAL
VETERINARY ADVICE
FOR
STOCKOWNERS.

By A. H. ARCHER, M.R.C.V.S.

SECOND EDITION.

WITH APPENDIX.

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PREFACE.

VERY few remarks in the shape of preface are needed for this small volume. The author explains that its object is to assist farmers and stockowners to maintain their animals in a state of health and usefulness. On the principle that "prevention is better that cure," attention is first directed to the conditions that are necessary to keep stock in good health. The various diseases are then clearly described, and information is given which will enable the owner to deal with the illness, if it be not of such a character as to call for professional treatment, or when advice cannot be readily and speedily obtained. As it is believed that in dangerous cases the best and cheapest course is to at once obtain expert assistance, the aim as regards these has been to afford such hints as will enable the farmer to recognise grave symptoms and to intelligently co-operate with the veterinary surgeon in bringing round the patient that may be suffering from any of the serious ailments to which live stock are subject.

CONTENTS.

For full Index see page 79.

PRACTICAL VETERINARY ADVICE FOR STOCKOWNERS.

Introduction.

THE object of this little book is to assist farmers and stock-owners in maintaining their animals in a state of health and usefulness. This it is hoped to accomplish by offering practical advice as to the observation of simple general rules, and the employment of ready-at-hand remedies in cases of illness and injuries.

It may be assumed that (except when it is otherwise stated) the remarks made in these pages apply to all domesticated animals, so far as the individuality of the species permits ; so also do the directions respecting the treatment of diseases and doses of medicines prescribed, a scale of which I have given for general reference (see pages 64 to 67).

A full index will be found on pages 75 to 79.

Food, Water, Air, Light and Exercise.

Food, water, air, light and exercise are necessary to maintain all our domesticated animals in health and usefulness ; therefore a few words on these will not be out of place here ; indeed, upon their reasonable use and application, the success of maintaining

health, and restoring it when departed from, in a great measure, depends.

Food.—Horses, which possess a comparatively small stomach, should never be overgorged with food, but should be allowed small quantities at rather short intervals. By disregarding this rule, very many of the fatal cases of abdominal diseases occur. Neither should a horse be subject to violent exercise immediately after a full meal or a large draught of water.

Horses in the prime of life, with good teeth, do not require their oats to be ground or broken. It is, however, better to crack or crush barley, maize, beans, peas, and especially wheat, when these are given, and young or very old horses benefit by having even their oats crushed. Bran is a very useful and wholesome article of diet for horses, cattle, sheep and pigs, when used in moderation and with discretion.

With regard to roots, carrots are by far the best for horses, although small quantities of mangels and swedes may be given. Parsnips are good for cows and pigs.

Never give a working horse dusty food, or if practically compelled to do so, always wet it before supplying it. Cooked or steamed food is not so good for horses in health as wholesome raw food, but it is sometimes preferable to give soaked hay, bran, or corn, rather than such raw food when it is in a mouldy or bad condition.

As a rule, horses do not thrive well on finely ground meals, unless they are furnished in small quantities with plenty of chaff or other long food. This also applies to cattle and sheep, but not to pigs. Cattle require two meals of bulky food per day, when not grazing, and sheep the same. Pigs should be fed two or three times a day, and dogs once or twice.

Water for all stock should be as pure as possible. Some persons advocate keeping a continual supply of water beside horses and cattle in the stable or byre. On the whole, I do not favour this practice, because it almost always happens that particles of

the food get into it, decompose, and so render the water impure; besides which, some water remains in the trough and the animal repeatedly washes its lips, nose, &c., in this, so that it soon becomes quite foul. If this could be easily prevented, I should have no objection to the practice.

Whether or not horses should have tepid water, is another point on which there is a divergence of opinion. Personally, I am convinced that horses benefit by having tepid water when coming off a journey or hard work, also in many cases of illness, and I advocate giving a small quantity, provided it is not too hard or excessively cold, when coming in from work before any food is given.

Cows too, I believe, will give more milk in winter if they are allowed tepid water to drink.

Very hard water is not good for animals; nor is quite stagnant water.

Air and Light.—All animals thrive best when they have plenty of air and light, so long as a sufficient degree of heat is maintained, and draughts, excessive heat, and sudden changes of temperature are avoided.

Low ceilings in stables, byres, cattle-sheds, &c., are fruitful sources of ill health.

In lung affections of all animals, plenty of fresh air should be allowed, the body being kept warm with rugs, &c.

Exercise, &c.—Regular, moderate exercise, is better for all animals than exercise at irregular times, or at an excessive pace. On recovery from illness, judicious exercise is beneficial, especially in those cases which have a tendency to cause stiffness of the muscles, &c., or swellings of the limbs.

All animals benefit by being kept clean, and a dry bed or lair should always be provided, for even pigs, although they enjoy wallowing in slush, suffer considerably if they are compelled to lie in a damp bed. All cesspits, &c., should be outside stables cow-houses, and pigstyes.

Frozen roots, or roots which have been frozen, should never be given to pregnant females, nor to females having recently given birth to young. Much loss is caused every severe winter, especially among sheep, from disregard of the evil produced by this.

Nursing, Administration of Medicines, and the Application of External Remedies.

Having frequently been surprised at the awkward manner in which many persons set about nursing a sick animal, and the inefficient, and often positively injurious way in which medicine is administered, also at the ignorance displayed in the application of external remedies, such as poultices, fomentations, &c., I advise all readers to carefully peruse and act upon the following suggestions.

In cases of acute abdominal pain, such as gripes or colic, or where exercise causes much evident distress, never compel the sufferer to be continually moved about; a little exercise lasting about five or ten minutes is sometimes beneficial, but constant compulsory movement is often very injurious. I am well aware that the object in "keeping a horse on his legs" that is badly griped, is to prevent a twisted gut, and this so far is all right, but on the whole much more harm is done than prevented by continuous forced exercise, for as a rule a bowel is not twisted by rolling (or we should get many more cases of this than we do in animals that are turned out at night after working all day, for very frequently the first thing they do is to roll on regaining their freedom); but it is produced by intense spasmodic action of the muscles of the bowel, and often occurs in cases where the animal has not been allowed to roll at all.

In all cases where difficult breathing is a prominent symptom, put the patient away from other animals, in a roomy loose box, clothe the body well, promote circulation by handrubbing, bandaging the legs, or rubbing them with some weak mustard water,

and especially allow plenty of fresh air, avoiding draught as much as possible.

Whenever a contagious or infectious disease appears, or is suspected, at once isolate the affected animal or animals, and use freely one of the numerous disinfectants both in and around the temporary hospital and also the stable, stall, shed, stye or kennel, from which the affected animal is taken, and never forget to thoroughly disinfect the place where an animal has been while suffering from an infectious disease, nor to enforce the daily disinfection of the person in charge of such a case. Mangers, racks, &c., can be effectually disinfected by washing with boiling water; walls and floors by limewashing, the limewash containing carbolic acid in the proportion of one pint of acid to a gallon of the limewash.

Contaminated litter or manure should either be burnt or thoroughly mixed with quicklime and carbolic acid, or some other disinfectant.

The atmosphere of a building can be easily and effectually purified by burning sulphur (brimstone) in it when no animals are in. In order to do this, after closing all doors, windows, airholes &c., some red-hot coals are placed in an iron vessel in the building, and then the sulphur is sprinkled on them, the operator immediately retiring after doing this, as the fumes are very strong and irritating to the throat and lungs. The doors, &c., should be opened for two or three hours after this performance before any animals are allowed to enter.

Similar proceedings are sometimes carried on in stables when horses are suffering from some forms of influenza, also as a cure for "Husk" or "Hoose" in young cattle and sheep, with the patients inside the building at the time, but to do this effectually without causing mischief requires skill, and should only be performed under the directions of an experienced person.

In all skin affections it is best to keep the combs, brushes, rubbers, &c., used on a diseased animal, away from other stock, as skin diseases are often conveyed by such means.

Never wash a sick animal with water except by direction of the person treating it. Always be particular to see that all clothing is thoroughly dry (unless otherwise ordered) before putting it on a patient.

Never give food left by a sick animal to others of the same or similar species, because, although in some cases it may not do harm, it never does good, and in many instances it is liable to give other animals the disease from which the one is suffering.

Do not give large quantities of food or water at one time to patients, nor leave food or water standing by them for a long time without changing it. In stomach and bowel diseases be careful not to give dry, hard food, such as clover-hay, straw-chaff, &c., and, although in some cases cold water may be allowed to stand continually by a patient, yet, on the whole, I prefer giving tepid water at intervals, in nearly all cases, believing this to be the safer rule to follow, and being convinced that there are cases in which, under certain conditions, a full draught of cold water is harmful.

Whenever an animal is suffering from a disease which prevents it from rising when down, take every precaution to maintain it, by means of bundles of straw, bags of chaff, &c., in as natural a position as possible, and prevent it hurting itself. This is very essential in treating cows with "milk fever" (parturient apoplexy).

Administration of Medicines.

Whenever medicine is given it should be done as quietly as possible, because when a patient is upset or excited much of the ordinary effect of the medicine is lost, and the progress towards recovery materially retarded.

Balls and pills are not readily swallowed, as a rule, when the patient has a sore throat, because the presence of a ball or pill in the throat causes the animal to cough and eject it.

Drenches or Draughts.—When giving a drench it is necessary to elevate the head sufficiently high to prevent the liquid flowing out, but do not force it too high, as this hinders swallowing.

Do not pour too much fluid into the mouth at once (and here I may say that there is no better instrument with which to drench a horse or pig than the old-fashioned cowshorn, because with this there is no fear of breakage, and the quantity given each time can be regulated much better than when a bottle or tin is used).

Do not pinch the animal's throat, or take hold of the tongue as I have often seen done, and be careful to let the head down immediately if it begins to cough or gurgle in the throat. (This remark applies with threefold force when it is a pig that is being drenched, because these animals are so easily choked, by the fluid passing down the windpipe.)

The best way to drench a pig is, to put a string in its mouth, taking the end over a door or beam, or through a ring, or something of that kind, sufficiently high that the head can be raised without pulling the animal off its forelegs; the horn containing the drench is placed in one side of the mouth and gently tilted, so that the fluid flows slowly into the mouth as the patient swallows. This operation requires a lot of patience, because pigs always hang back, and generally squeal for a considerable time after being caught, and occasionally they make a spring suddenly, and a rush, which greatly intensify the danger of choking.

Many cows will take a drench better when the person who is holding them takes hold of the horns instead of the nose (which is commonly done).

Sheep are often forced with medicine much faster than they can fairly swallow it, and choked or injured in this way.

When oatmeal gruel is given, either alone as a nutrient, or as a vehicle for medicine, the fine oatmeal should be used, as the coarse causes the animal to cough while being drenched. For the same reason linseed tea or gruel should always be strained before being administered.

Never give a drench in hot water, beer or gruel, for not only does it irritate the patient by scalding its mouth, but many medicines are deprived of much of their virtue by heat; therefore,

when a medicine is ordered to be dissolved in hot water, take care that it gets cool before an attempt to administer it is made. It is far better to give medicine in cold water, &c., than in that which is too hot.

Application of External Remedies.

Poultices.—Ordinary poultices can be made with anything that will retain heat and moisture, such as linseed meal, bran, boiled mashed turnips, soaked bread, &c. When a poultice is prescribed (unless otherwise stated), a hot wet poultice is meant. These should not be so hot but that the back of the bare hand can be readily borne on it. Dry poultices are sometimes ordered, especially for badly chapped heels and other discharging wounds. All poultices of the above description should be renewed every twelve hours at least.

Mustard Poultices.—In making mustard poultices, hot, but not quite boiling, vinegar or water should be used, sufficient to make a thin paste, and it should be well rubbed in, the hair being previously clipped off the part if it is very thick and the case is urgent. If an extra strong poultice is required, a little turpentine or ammonia may be added.

A sheet of brown paper should always be placed over a mustard poultice.

Fomentations, Hot and Cold.—When hot fomentations are used, the water must not be so hot as to scald the skin, and if the part requiring the fomentation is in such a position as to prevent a bandage or rug being kept on—such as the thigh, forearm, &c.—a good-sized piece of flannel should be used, so that it may be spread over the part, after dipping it in the water, and it must be held in place until it gets cool, when it must be redipped in the water. This is much more effectual than dabbing on a lot of water with a small cloth.

Whenever possible, the heat of a hot, wet rug may be kept up by

placing a piece of water-proof cloth, or even another dry thick rug or cloth over the hot wet one, which will then retain its heat for two hours or more, so that the inconvenience of frequently renewing it will be greatly diminished. This method is especially useful when hot rugs are put on the abdomen or chest in such diseases as inflammation of the bowels, lungs, &c.; also in bathing the parts around an extensive or painful wound.

When hot fomentations are discontinued the parts should be rubbed dry, and either a dry rug put on, or if this is impracticable, a little whisky or very weak mustard water should be rubbed on the part to prevent it becoming chilled; of course the latter must only be employed when the skin is unbroken, and not when bathing or fomenting an open wound.

Cold Applications are usually made to sprains of the limbs, or to injuries at or near a joint, such as broken knees when the joint is almost or quite laid open. When cold applications are employed they should be continuous, so long as is necessary.

Steaming or Vapour Inhalations.—Many cases of sore throat, bronchitis, discharge from nostrils, &c., are greatly relieved by steaming. To do this, sawdust or bran is put in a pail, or nosebag having sufficient holes in it to admit a free supply of fresh air, and hot water poured on to it, and then the patient's head is tied over the pail so that he is compelled to inhale the steam; or the nosebag is placed on in the usual way. This latter, however, requires great care, as many horses have been injured by putting a scalding hot nosebag of sawdust or bran on when suffering with a badly swollen throat, or partly blocked up lungs, and not allowing a free supply of fresh air, in which case the animal is liable to be suffocated. Whenever, therefore, an animal is steamed by means of a nosebag, the attendant should stay with it for fifteen or twenty minutes, so that he can remove the bag for a short time if the patient begins to show signs of distress.

Hand-rubbing and Dry Bandaging.—When the ears, legs, &c., of a sick animal are colder than is natural, hand-rubbing

and dry bandaging should be employed to assist in restoring the circulation of blood in the parts.

Clysters or Enemas.—These are administered by means of a proper syringe, which can be procured from medical instrument makers. Ordinary care only is required, not to roughly force the enema pipe when introducing it into the anus or vulva, and not to have the liquid injected too hot nor too cold, but about as warm as newly drawn milk.

Soap and water, or oil and water are the materials used to inject into the anus in obstruction of the bowels, and warm water usually containing carbolic acid, Condy's fluid, or some other disinfectant, for injecting into the vagina.

Bleeding.—The practice of bleeding or blood-letting is now but seldom employed in the treatment of disease, nevertheless, I am satisfied that in certain cases, such as laminitis (fever in the feet), some obstinate non-parasitic skin diseases, and others, the withdrawal of a moderate amount of blood from the jugular vein (this being the large vein which takes its course down the hollow of the neck) has a most beneficial effect.

Similar remarks apply also to **Setoning** and **Rowelling,** for although these have been greatly abused in the past, practitioners of the present day have gone to the other extreme, and have foreborne adopting these simple curative means, when, by employing them, the disease they are endeavouring to overcome, or assist nature to overcome, would be more tractable, for is not nature's own means of relieving intensely congested blood vessels, the exudation of the fluid part of the blood and frequently the actual rupture of a blood vessel, and in the case of blood surcharged with effete and unwholesome material, the formation of an abscess which breaks and clears the system by the discharge, as in the case of strangles in young horses?

Simple and Common Remedial Agents.

I wish to impress upon my readers the important fact, that a simple remedy applied at the very outset of a disease is generally more effectual than a more potent drug or the adoption of a drastic measure, when the disease has become well-developed. Therefore, do not despise simple remedies.

Linseed Oil.—This can with safety, and often with very beneficial results, be given in almost any case where there is costiveness or inaction of the bowels, and, if applied sufficiently early, it will frequently prevent or modify an obstinate stoppage of the bowels.

Castor Oil is also a useful laxative. It is more powerful than linseed oil and more liable to cause griping.

Lard.—Hog's lard melted and given while still warm is a capital substitute for linseed oil when this is not at hand, or even goose-grease may be used for the same purpose, and both are good for rubbing on inflamed or enlarged glands, such as the udder, glands of the throat, &c.

Sulphur (Brimstone).—This is a simple and generally safe remedy in skin diseases, both when given internally and applied externally. It is also a mild laxative and is often given to horses, cows, dogs and pigs, for this purpose, both separately and combined with Epsom salts and treacle.

Treacle.—This is a laxative, and is often given with advantage to cattle and sheep, with Epsom salts, to increase their action and to mask their bitter taste.

Epsom Salts (Sulphate of Magnesia) is one of the most common purgatives for cattle, sheep and pigs, given in full doses, and in smaller doses as a febrifuge (to allay fever) frequently repeated. It is sometimes given to horses for this latter purpose. It is seldom given to dogs on account of its bitter taste and the large dose required, syrup of buckthorn and castor oil being used as a purgative for these animals.

Glauber's Salts, commonly called "cattle salts," are used for the same purposes as Epsom salts, the medicinal properties being of a similar character.

Common Salt (Chloride of Sodium) is very useful medicinally as an appetiser, correcting acidity of the stomach, aiding the digestion, and it also destroys or expels worms from the bowels. It is frequently given to horses, cattle and sheep, combined with sulphate of iron and aniseed, as a tonic in cases of debility. It is not often administered to pigs, as it has a poisonous effect on them if given in anything like large quantities, or continued for a length of time. Indeed, many pigs are killed by partaking too freely of brine and buttermilk insufficiently diluted. Common salt is also a laxative given in large doses, but it is not so effectual or safe as either Epsom salts or Glauber's salts, for this purpose. A dose of salt is sometimes given, when nothing better is at hand, to cattle and sheep that are "hoven" or "blown."

Washing Soda (Carbonate of Soda).—This is used dissolved in water in cases of indigestion, with good results, and it is also a diuretic, causing the animal to urinate. A strong solution of soda can be used to bathe painful joints in cases of rheumatism. As is the case with common salt it is not advisable to give it to pigs.

Bicarbonate of Soda (commonly called carbonate of soda) is used in similar cases to the above, and as it is less irritating to the stomach and bowels, it is usually preferred to ordinary washing soda.

Pepper, Ginger, Mustard.—The two former of these simple articles are given (generally in warm ale or gruel) in cases of chill and gripes, to horses, cattle, and sheep, and in uncomplicated cases they are very good, but when the patient has an inflamed or sore throat, or when inflammation of the stomach or bowels exist they cause great additional pain and aggravate the inflammation. In fact, I know of no common simple remedies that

are so often mis-applied as pepper and ginger, the idea being "to warm the inside" whenever an animal is chilly or attacked with shivering or trembling.

Mustard is occasionally given with Epsom or cattle salts in cow drenches, and in certain cases it is beneficial, but it is more frequently employed externally in the form of plaster or poultice when an internal inflammation is being treated, also in sore throats and whenever it is desired to arouse the activity of some part or organ. In the form of poultice it may be applied to all animals.

Flour.—This is extremely useful as a nutrient given in the form of gruel, especially in cases where there is a tendency to diarrhœa, and it may be given to all animals.

Externally, it is either dusted on a sore, burn, or scald, or mixed with linseed oil or sweet oil, and applied in the form of paste.

Starch may be used for the same purposes as flour, and it is also very useful for stiffening bandages when a broken limb is being set, or for giving mechanical support to a limb or other part of the body.

Oatmeal is excellent for making nourishing gruel when it is requisite that the bowels should not become costive.

Hops.—An infusion of hops (hop tea) is very useful in creating an appetite, especially in liver diseases, and hop poultices are very soothing to inflamed and intensely painful udders and other glands.

Eggs.—New laid eggs are very nourishing, and may be given in all cases of debility, especially if these are attended with an irritable condition of the bowels, to all animals. The white of eggs is good for stiffening bandages when setting broken bones, &c.

Milk.—New milk is an excellent nutrient liquid, and may be given to all animals in debilitating diseases, except when there is a tendency to rheumatism, when cod-liver oil is to be preferred. Sick animals, especially horses, pigs and dogs, will often take milk of their own accord when they will not touch gruel, but care must

be exercised when giving it to horses and dogs, particularly to see that it is new and sweet.

Ale or Beer.—Good sound ale is a mild stimulant, and it forms the vehicle in many drenches. It is not given to pigs or dogs.

Alcohol in the form of whisky, brandy, port wine, home-made wines, &c., is a very good stimulant in cases of exhaustion, and in the early stages of chills, colds, &c.

Linseed.—Whole linseed stewed well with a good quantity of water makes a most nourishing tea or gruel.

The crushed or bruised seeds are used for making poultices.

Chalk.—Many animals when confined in stables, sheds, &c., are fond of gnawing lumps of chalk. It assists digestion and corrects acidity of the stomach, being very useful when given in cases of diarrhœa or relapsed condition of the bowels. Fatting calves are generally particularly partial to it.

Rock Salt.—A lump of rock salt should be placed within reach of horses, cattle and sheep. It aids digestion, and tends to prevent the development of worms in the intestines.

Contagious and Infectious Diseases that come under the Contagious Diseases (Animals) Acts.

The following is a brief description of the contagious and infectious diseases which come under the "Contagious Diseases (Animals) Act," and information as to the existence or suspected existence of which, must, according to law, be given by the owner or his representative to the police. The officers of the law in all these cases, furnish instructions as to the destruction, treatment, removal of animals, and disposal of carcases, manure, &c., so that directions are omitted from this work.

It is well to bear in mind that these diseases can only be produced by the introduction into the system of the specific virus, or poison, peculiar to the disease (each disease having its own

special virus), and that no amount of bad feeding nor filth will cause, although they certainly favour the development of, these maladies.

The common signs of illness in animals, such as dulness, loss of appetite, loss of cud in ruminants, stoppage of the secretion of milk in milch cattle, &c., are so well known, that it would only be useless repetition for me to mention them in each case. I shall only describe the symptoms characteristic of the several diseases, and the presence of the ordinary signs of ill-health may be assumed, unless a statement to the contrary is made.

Anthrax.—This is due to the presence in the blood of a minute vegetable organism, which can only be seen by the aid of a microscope. It gains entrance to the body of animals through a wound, scratch, or in the food or water. When once in the blood, this organism (bacillus anthracis) multiplies with great rapidity, and causes death by altering the condition of the blood, or by interfering with its circulation or perhaps by both these means.

The symptoms during life, beside those of illness generally, are unwillingness to move, stiffness of gait, costiveness of bowels, the dung often being streaked with blood, and the temperature is raised. Death generally occurs in from six to forty-eight hours after the first appearance of the symptoms.

Cattle Plague (Murrain).—This disease has not visited our shores for some years, and is not likely again to obtain a footing in this country, so that a description is unnecessary.

Foot and Mouth Disease affects cattle, sheep and pigs. The virus or poison of this disease can be conveyed by manure, straw, food, &c., as well as by living animals. Symptoms: Lameness, champing of the mouth from which saliva flows freely, the presence of vesicles or bladders on the gums, tongue and between the claws, these bladders being of a considerable size (from the size of a threepenny piece to that of a half-crown), and filled with a watery fluid; when broken, they leave a raw, red sore.

Young animals sucking their dams often die suddenly in this disease from a form of blood-poisoning.

Pleuro - Pneumonia Contagiosa (Lung Disease).—This in its early stages is often mistaken for an ordinary cold. It affects cattle and deer. Its distinctive symptoms are, a peculiar cough, catching the breath, and grunting during expiration, and on listening to the chest-sounds, those characteristic of this disease are detected by an experienced person. The lungs, when cut into after death, present a marbled appearance.

Swine Fever.—As its name implies, attacks pigs. Symptoms, in early stages: loss of appetite, dulness; affected animals appear very sensitive to cold, and creep into their bedding, the bowels are costive; thirst, and a husky cough are generally present, the skin at the back of the ears, inside the thighs, &c., is hot and red.

As the disease advances, costiveness is followed by an offensive diarrhœa; there is stiffness or weakness of the hind parts, and the cough increases. These gradually get worse until the sufferers are unable to rise and the dung often becomes streaked with blood.

Glanders and Farcy. — These are one and the same disease, which, arising in horses, donkeys and mules, can be conveyed to man by inoculation through a sore or wound.

Symptoms.—A peculiar, sticky, odourless, whitish or pale yellow discharge from one or both nostrils, commonly only one, swelling of the glands between the lower jaws, and in fairly advanced stages there is often a cough present, also the coat becomes dull and staring, and there is more or less distressed breathing when the animal undergoes severe exertion.

The above applies to glanders when unaccompanied with farcy, but in the latter all or some of these symptoms are present, and also more or less swelling of some part or parts of the body (generally the limbs) along which swelling, sores break out that do not heal readily.

In glanders and sometimes also in farcy, ulcers can be seen be looking up the nostrils, but an experienced eye is needed to recognise their true character.

Injection of "Mallein" is now, by many, recognised as the most reliable test for ascertaining the presence of glanders and farcy.

Sheep Scab.—This is due to a minute parasite which causes, by its presence on the skin, great irritation.

Symptoms.—The rubbing of affected animals against hurdles, posts, &c., nibbling and pulling the wool, which gives them a ragged appearance, and on examining the skin, brown scabs surrounded by a red patch are to be seen. It is not a fatal disease but causes much loss by interfering with the thriftiness of affected sheep.

Small-Pox in Sheep.—The diagnostic feature of this disease is the presence of the characteristic eruption on the skin, which at first appears in the form of rather hard, dull-red lumps; then softening of these lumps takes place, a vesicle or bladder, which is depressed in the centre, and containing a clearish fluid, appears; these vesicles then burst and form a brown scab surrounded by a red or purple ring.

This disease proves very fatal to sheep in many cases.

Rabies (Hydrophobia) is common to all domestic animals, and is brought about by inoculation through a bite or wound to which the saliva of a previously affected animal gains access. Viciousness in all affected animals is the prominent feature of this disease, and it comes on in paroxysms, with longer or shorter intervals of comparative quietude. Horses bite, stamp, throw themselves down, &c. Cattle attempt to toss and even bite. Sheep butt, pigs and dogs bite, and the latter will often snap when no object is present. There is excitability of the genital organs, and this is particularly noticeable in sheep. There is no fear of water, but often difficulty in swallowing owing to spasm of the throat.

Common Diseases of the Blood.

Septicæmia, or Ordinary Blood-Poisoning is brought about by the material (consisting of minute organisms) from unhealthy wounds, dirty instruments, &c., becoming absorbed into the system, which so alters the character of the blood that it cannot support life.

Symptoms.—Shivering, gripy pains, great dejection, interference with the functions of all organs to a greater or lesser extent, the lungs being especially affected.

Treatment.— Remove the cause when possible, cleanse the wound and apply some such agent as carbolic acid, either pure or mixed with equal parts of glycerine. Give internally a draught at every three or four hours at first, extending the intervals as the patient recovers, composed of hyposulphite of soda, turpentine and sweet spirits of nitre, in good ale or stout; support the animal's strength with gruel containing whisky or port wine, and keep the bowels open with occasional doses of linseed oil if necessary. If the patient is very weak, sulphate of quinine dissolved in dilute sulphuric acid may be given once or twice daily; chlorate of potash should be given in the drinking water daily.

Pyæmia is another form of blood-poisoning, caused by pus (matter) from an abscess becoming absorbed into the system and producing other abscesses about the body.

Treatment.—The same as in septicæmia, bu quinine is more essential in this disease, and dialysed iron should also be given.

Puerperal Fever, or Septic Metritis (which is so prevalent in some seasons, especially among ewes, although it is common to all female domestic animals that have given birth to young, and is rather common in bitches), should be treated in the same manner as septicæmia, but, in addition, the womb should be frequently syringed out with disinfectants, such as a weak solution of carbolic acid, Condy's fluid, &c., and laudanum, and tincture of aconite given with the hyposulphite of soda, turpentine,

&c., to check the straining or paining, which is such a marked feature in this disease.

I may here add that every precaution should be taken, when this disease makes its appearance, against its spreading, by having separate attendants for the sick and healthy animals ; isolation, disinfection of discharges, &c.

Black Garget in sheep and cows should receive similar internal treatment, but, of course, the injections are not required. The diseased udder, however, if it becomes cold to the touch, should be freely lanced (cut into), and some white oils applied after fomenting with hot water several times a day. This treatment, if adopted sufficiently early, will save many cases that would otherwise end fatally.

Blackleg, Black-Quarter, Quarter-Evil, Strike.—This affects young cattle and sheep, especially the former, when they are thriving, after having been rather low in condition.

Symptoms.—Stiffness, unwillingness to move, swelling, which gives a peculiar crackling sensation when touched, in a limb or some other part of the body.

Treatment.—Same as for black garget, freely cutting into the swellings, when these are in such a position as to make it possible without injuring some vital part, and supporting the animal's strength with stimulants, tonics and gruel.

Tetanus, Lockjaw, is now known to be due to a minute organism which gains access to the body through some wound or scratch (often very slight), or through the stomach or intestines.

It is common in horses and sheep, less so in cattle, dogs and pigs.

Symptoms.—The distinctive stiffness of the muscles of a part or whole of the body, causing the straddling gait, and the inability, more or less pronounced, to open the jaws. The breathing is also hurried, and the sufferer easily sweats.

Treatment is not very successful as a rule. Keep the patient as quiet as possible, and give sloppy nutritious food, containing doses of aconite and bromide of potassium, twice or thrice daily.

Strangles in Horses is an affection of the blood, usually attacking young horses. It is very contagious, and is sometimes fatal, by giving rise to complications, whereby vital organs of the body are affected.

Symptoms.—An unthrifty appearance, a "staring" coat, difficulty in swallowing, owing to soreness of the throat and swollen glands, discharge from eyes and nose, and a short hacking cough.

Treatment.—Keep the patient warm, feed with cooling and nutritious food, such as bran, meadow hay, &c., and a few crushed oats. Poultice the swellings about the throat, &c., until they break and discharge matter. Give chlorate of potash, in food or water, and if much weakness is present give dialysed iron, and for nourishment new milk, eggs, gruel, &c.

Distemper in Dogs.—In many points this is of a very similar nature to the above, the symptoms being almost identical, except that the glands of the throat do not usually swell and gather, and it is very frequently followed by serious complications, especially St. Vitus's dance (chorea), inflammation of the lungs, disease of the liver, paralysis or epileptic fits.

Treatment.—Chlorate of potash, or liver of sulphur in the early stages ; when the disease is fully developed a mixture composed of compound tincture of camphor, ipecacuanha wine, syrup of tolu, syrup of squills, and sweet spirits of nitre ; follow by tonics, such as compound syrup of phosphates (Parrish's chemical food), and cod-liver oil.

Diphtheria.—Pigs, dogs and cats are subject to this painful, fatal and contagious disease.

Symptoms.—The usual symptoms of ill-health, and the peculiar sore throat, in which a membrane is formed about the top of the windpipe, which greatly interferes with the breathing and swallowing.

Treatment should only be undertaken by a skilled practitioner, but pending his arrival the throat may be poulticed and washed out internally with a strong solution of permanganate of potash or Condy's fluid.

Common Farcy, Weed (*inflammatory œdema*), generally attacks horses, occasionally cattle.

Symptoms.—A sudden and intensely painful swelling of some part of the body, usually one of the legs, mostly a hind leg. When first seized with an attack the animal trembles, breathes quickly, and shows every evidence of acute suffering. Soon a hot painful swelling appears, accompanied by great lameness, or rather difficulty in moving when the part affected is a leg.

It usually appears after a period of rest has followed severe exertion.

Treatment.—Give a draught composed of turpentine, sweet spirits of nitre, tincture of aconite and linseed oil. This may be followed next day by a dose of aloes if the bowels are costive, and the animal has no signs of suffering from a cold.

The swollen part should be fomented with hot water, and then a cooling and sedative lotion applied. Goulard's water containing a little laudanum answers very well.

Should the swelling not be reduced by this treatment in three or four days three or four quarts of blood may be withdrawn from the jugular vein. After the first day of an attack, the patient should be made to take some exercise two or three times each day.

The diet should consist of bran mashes, dry bran and meadow hay, until some progress towards recovery is made, when a few oats may be allowed. Tepid drinking water should be given throughout an attack of farcy.

Hæmo-Albuminuria, Bloody Urine or True Redwater.—This occurs especially in cattle, it being particularly prevalent in some districts among cows immediately before, or within about a fortnight after calving. It is due to an altered state of the blood, caused by disease of the liver, produced by eating acrid plants, frozen roots, or some such dietetic error.

Symptoms.—Highly offensive liquid dung is passed in the early stages, followed later by obstinate constipation, and the urine is of a blood red colour.

Treatment.—First give a full dose of Epsom salts followed by gentian, bicarbonate of soda, and carbonate of iron. Support the patient's strength with new milk, eggs, gruel, &c.

False Redwater (reddish tinged water in the abdomen) is a sequel to many debilitating diseases, especially diseases of the liver and peritonitis (inflammation of the lining of the abdomen). It is very common in sheep that have been exposed to inclement weather when not receiving sufficiently nourishing food, after being fed too freely on watery roots with a small allowance of dry food, &c.

Treatment.—Give good food and tonics, especially preparations of iron.

Scrofula.—This is a state of the system in which there is a tendency to form specific abscesses, containing a thick, viscid whitish pus or matter (or to develop tuberculosis), in some organ or organs of the body. The tendency to it is undoubtedly hereditary. It is common to all animals, the disease known as "Hog-pox" in sheep, joint-evil in calves, lambs and foals, being of this nature. It often causes great mortality in young lambs by attacking their livers and glands of intestines, when they are begotten of a ram, or delivered from an ewe having a constitutional tendency to this state. In foals and calves it shows itself by causing painful swellings and suppurations (gatherings) at the joints, constituting one form of joint evil.

Treatment. — Support the strength of the patient, and give iodide of iron, iodide of potassium and cod-liver oil internally in repeated doses so long as necessary, and rub the swollen joints with white oils or compound soap liniment, and when gathered and broken, wash with warm water containing Condy's fluid.

Tuberculosis.—This infectious and dread disease is now known to be due to the presence of a minute organism in the system, which has the power of multiplication when situated in any part of the body of an animal suitable to its development. All domesticated animals, including poultry and man are subject to it (goats being apparently less liable to it than other animals).

The lungs, except in poultry, are the part most frequently attacked (poultry suffer from this disease in the liver and glands of the bowels), although it may affect any organ, even bones. The tendency to it is decidedly hereditary, and it can be conveyed from one animal, and even from one species, to another. The chief means of conveyance are the expectoration, breath, blood and milk.

Symptoms.—General wasting, a hollow cough when the lungs are affected, and obstinate diarrhœa when the bowels are diseased.

Treatment of tuberculosis is not often satisfactory, or at least only for a time. Cod-liver oil, preparations of iron and iodine, combined with good nursing are sometimes effectual in checking the disease.

Navel Ill in Foals, Lambs and Calves has proved to be due to the entrance into the system by means of the freshly severed navel string, of a minute organism which sets up inflammation and suppuration (gathering) which sometimes extends into the system and produces death, especially in scrofulous subjects.

Symptoms.—Inflamed, swollen and suppurating condition of the umbilicus (navel).

Treatment.—Same as for scrofula, including dressing the navel twice daily with carbolised oil.

Rheumatism.—This is often associated with scrofula in young animals. In older animals it causes great pain, its chief characteristic being that it changes suddenly from one place to another.

Treatment.—Give salicylate of soda and colchicum internally, with bicarbonate of potash or soda in food or water, and apply white oils or compound camphor and soap liniment externally. Change of air and locality are often very effectual in relieving rheumatic patients. No acids, nor food containing sugar should be allowed.

"Kennel Lameness" in Dogs and "Cramp" in Pigs are of a rheumatoid nature, and should be treated accordingly.

Influenza.—This disease is especially important as affecting, horses, human beings, dogs and cats, for although cattle and sheep are subject to ordinary colds or catarrh they do not suffer from influenza proper to any marked extent.

Symptoms.—These vary according to the nature and severity of the attack. In some outbreaks the glands of the throat swell and suppurate (gather). In these cases of course the throat is very sore, and often the eyes cannot tolerate the light. In other outbreaks the liver is the chief organ attacked, and in these, yellowness of the eyes, mouth, &c., is a prominent feature, while at other times the lungs are chiefly affected, causing difficult, painful and rapid breathing generally attended by a cough of more or less severity.

Treatment.—One great point in all attacks of influenza is to give the patient absolute rest and good nursing, immediately it is perceived to be ailing ; this is the golden rule wherewith to prevent complications. Keep the patient warm, give nourishing food or drink, such as linseed gruel, oatmeal gruel, new milk, eggs, port wine, &c.

In the early stages and mild forms of influenza a few doses of sweet spirits of nitre, tincture of aconite and solution of acetate of ammonia, given in ale or gruel, once or twice a day, with chlorate and nitrate of potash in the drinking water, are all that are required ; but in severe cases when complications arise it will be money well spent to call in a competent veterinary surgeon.

It should be borne in mind that this is a very contagious and infectious disease, therefore all food left by sick animals should be destroyed, and healthy animals should not be allowed to occupy the same building nor drink out of the same trough, bucket, vessel, &c., as a diseased animal, neither should healthy animals be allowed to come into such buildings as have been occupied by sick ones until such places have been most thoroughly disinfected.

Diseases of the Digestive System.

Inflammation of the Gums (Lampas). — When a young animal is cutting or changing its teeth, there is frequently a considerable amount of inflammation of the gums present. In the horse this has received more attention than in other animals, and is often, by the uninitiated, considered to be a disease, commonly known by the name of "Lampas"; and to relieve this, the cruel, absurd, and totally unnecessary operation of burning the gums with a red-hot iron, is by some persons, had recourse to. A few slits with a sharp knife, and a dose or two of nitre (saltpetre), in the drinking water, should suffice to give relief.

Canker in the Mouth.—This is due either to a disordered state of the stomach or it arises from some irritant coming in contact with the mucous membrane of the mouth. A lotion composed of chlorate of potash 1 drachm, water ½ pint, and tincture of myrrh 2 drachms, should be poured into the mouth two or three times daily. This same lotion is also useful for injuries to the tongue and mouth. A dose of purgative medicine should also be given when a disordered stomach is suspected of being the originator of the mischief.

Actinomykosis.—This is the name given to a disease of the tongue, roof of mouth, jaws, &c., frequently met with in cattle, occasionally in other animals, which used to be considered to be true cancer, but it is now known to be due to a vegetable fungus. If taken in the early stages, it is curable, but the treatment should always be undertaken by a veterinary surgeon.

Choking. — In horses, cattle and sheep this is generally brought about by a piece of turnip or some other root, or cake. becoming fixed in some part of the gullet. In pigs and dogs the cause is more frequently a bone or piece of skin. Horses again, when coming in very hungry from a long day's work, will feed ravenously and bolt their food, especially if it be clear corn, and this is sometimes, after being swallowed, forced up again into the

gullet (œsophagus) by the gas (wind), which has accumulated in the stomach, and so a form of choking is produced.

Treatment.—In all cases, where the obstruction is in the throat, remove it with the hand or any suitable instrument that is procurable. If it be too far down for this, try gentle continuous rubbing over the seat of obstruction ; hot fomentations, hot rugs around the throat will often give relief, and if all these efforts fail, a stiff rope, piece of cane, or other pliable wood, having the end smooth or padded, may be passed down the throat, and firm but steady pressure employed until the offending mass be moved and passed down into the stomach, after which give the patient soft food for a day or two.

I may here mention that it is not an uncommon thing for a dog to get a piece of bone fixed in or on his teeth, causing him to behave like a mad animal, scratching his cheeks, howling and making hideous contortions in his efforts to get rid of it, which he is rarely able to do without assistance.

In obstinate cases of choking do not delay getting professional aid.

Indigestion. — Most or all kinds of animals suffer with indigestion in some form. In horses, cattle and sheep, short wheat-straw chaff, pea-straw, hard hay, too much finely-ground meal, and large quantities of roots are the chief causes, but it may be brought on by ordinary food when the system is impaired from cold or excessive exercise.

Symptoms.—Distension of stomach with gas (wind) (this is more marked in cattle and sheep than in other animals) ; chilliness of extremities and surface of body, listlessness and total loss of appetite.

Treatment.—First give a full dose of aromatic spirits of ammonia and whisky, in ale or water, and follow this with linseed oil or castor oil in horses, pigs, or dogs ; Epsom salts in cattle and sheep. Should this not entirely effect a cure, give two or three doses of hyposulphite of soda every twelve hours in water.

Hove, Hoven, or Blown. — This occurs especially when sheep or cattle are allowed to feed greedily, with an almost empty stomach, on any succulent food, such as young clover, rape, &c. The stomach, becomes intensely distended with gas (wind), and often death is rapidly brought about by the animal being unable to breathe owing to the pressure of the distended stomach on the lungs.

Treatment.—A probang passed down the throat into the stomach will quickly give relief. In urgent cases, where death is imminent, a long-bladed knife may be plunged into the stomach, the place for introducing it being about midway between the last rib and the point of the hip. This will give instant relief by allowing the gas to escape, the knife being kept in until this is accomplished. Where these cases are common, a proper instrument (trocar and canula) should be kept for the purpose, as this is much better and safer than using a knife. In mild cases, and after liberating the gas in the above way, one or two doses of aromatic spirits of ammonia and linseed oil should be given.

As a preventive, never allow sheep or cattle to go on such food as is likely to cause the mischief when their stomachs are quite empty, and keep them moving gently about for the first hour. Calves when being weaned with the pail, are often affected with hoven immediately after drinking. This is because they drink too fast; to prevent this give them small quantities of good milk, without allowing too long an interval between each feeding, and add a little lime water to the milk each time.

Gripes, Colic (Spasm of the Bowels).—This is a very painful ailment, and the symptoms are so well known that no description is needed. It is brought on by some irritant in the bowels, such as frozen roots, big feeds of green or other succulent food when not accustomed to it, large draughts of cold water when in a heated state, worms in the bowels, indigestible food, &c.

Treatment.—Give a draught composed of a fair dose each of turpentine, aromatic spirits of ammonia, laudanum and linseed oil.

If these are not at hand, whisky, brandy or gin, with a little ground ginger, may be given in ale or gruel. If relief be not obtained in two hours, repeat the dose of brandy, laudanum and linseed oil, and if in two hours more the pain continues, use such external remedies as mustard poultices, hot rugs, &c.

Enteritis (Inflammation of the Bowels).—This is more serious than gripes, but is very deceptive to ordinary observers, because the pain is not so markedly evident as in gripes, but it is continuous, the legs, ears, &c., are cold. At first the dung is passed frequently, in small quantities, and then obstinate inaction of the bowels sets in, owing to their semi-paralysed state.

Treatment.—When inflammation of the bowels is suspected, never give irritants such as ginger, pepper, turpentine, whisky, &c., because these only aggravate the evil, and many deaths are caused in this way. Repeated doses of laudanum, brandy and linseed oil, may be given, mustard poultices (strong) and hot rugs applied, but no time should be lost in procuring professional advice.

Stoppage (Impaction of the Bowels).—This is impaction of some part of the bowels with undigested material, causing an inability to pass fæces (dung). Of course a stoppage may, and often is, caused by some growth, such as a tumour in, or near the bowels, stricture, some solid material such as a stone in horses and bones in dogs, but these, when well pronounced, are either hopeless, or require skilled surgical treatment.

Treatment of ordinary stoppage. Large doses of linseed or castor oil, with aloes for horses, Epsom salts and treacle for cattle and sheep, jalap for pigs, and syrup of buckthorn for dogs, followed by hyposulphite of soda and tincture of hyoscyamus once or twice daily so long as necessary. Warm clysters should be frequently given and the patient made to move occasionally for a few minutes at a time. Should inflammation set in, treatment must be adopted accordingly.

After an attack of stoppage the food should be small in quantity and of a digestible nature, given at rather frequent intervals. Boiled tripe is exceedingly good for dogs that suffer in this way.

Diarrhœa (Scour).—This is common to all animals and may be either acute or chronic. It is due to an irritant of some kind, such as undigested food, food of an irritating nature, or intestinal parasites (worms) in the intestines. It is very common in young animals, when the milk of the dam is not quite as it should be, or when artificial substitutes are used in place of the mother's milk. It is often caused in foals by allowing them to suck when their dams are in a heated state from work, &c.

Treatment.—The first step is to discover and remove the cause. A fair dose of either linseed or castor oil should be first given, to expel all irritating material, followed by doses of "Diarrhœa Cordial," given every few hours in cold flour or starch gruel. When acidity of the stomach is present, which is generally the case when green food is causing the mischief, a few doses of bicarbonate of soda are very useful. Lime water is also good for the same purpose, and is especially beneficial when mixed with milk that is upsetting the calves, &c.

Of course when worms are the cause of diarrhœa, suitable worm medicine must be given to expel them.

Sheep, and particularly lambs are attacked with an obstinate and often fatal form of diarrhœa, which is attended or followed by inflammation of the lining of the bowels, when feeding on clover, grass seeds, &c., that have been previously fed off with sheep.

Peritonitis (Inflammation of the Lining of the Abdomen).—This disease occurs either as the result of an injury, from an ordinary cold, or by the extension of inflammation of some other organ, such as the womb.

Symptoms.—General stiffness and tenderness of abdomen, pain and often grunting when the sufferer is made to move, the abdominal muscles are set or rigid and the animal avoids using them, in breathing, as much as possible.

Treatment.—Repeated draughts composed of solution of acetate of ammonia, sweet spirits of nitre and tincture of aconite. Hot rugs to the abdomen. Keep the body warm and give nourishing food.

If not relieved in the early stages, serum (water) exudes into the abdominal cavity, constituting one form of the condition known as "watery bellied."

This disease causes the death of many sheep in inclement weather particularly after being washed or shorn.

Laminitis (Fever in the Feet) is common to all animals, but is met with especially in the horse. It is caused in a variety of ways; by high feeding, excessive exercise on hard roads, insufficient exercise, sudden changes of diet, feeding on wheat, or suddenly on large quantity of other corn. It also follows other diseases, especially those of the bowels, or of a debilitating nature, as over purging.

Symptoms.—Great disinclination to move, and when made to do so in a forward direction the animal stumbles along, fearful of putting any weight on the forefeet (which are nearly always most affected), planting the hind feet as far forwards as possible, and in moving backwards the forefeet are dragged reluctantly along the ground, and the sufferer "swings" on his hind quarters, these motions giving novices the idea that he is "hurt in the back." The breathing is quick and painful, and the feet are hot.

Treatment.—Give a ball composed of calomel 2 scruples, opium (powdered), 1 drachm. Bleed (except when the attack is a sequel to a debilitating disease), from the jugular vein to the extent of four or five quarts. If the bowels are costive give a mild purgative with linseed oil, and follow on with a draught twice daily, composed of tincture of aconite, sweet spirits of nitre, and solution of acetate of ammonia.

As soon as laminitis is detected the shoes should be removed, and hot bran poultices kept on the feet for two or three days, then bar rocking shoes should be put on and the patient compelled to take exercise (not too violent at first, but increasing it as he recovers.)

In chronic cases of laminitis blisters to the coronets are most to be relied on as giving relief.

Diseases of the Liver.

Congestion of the Liver.—This may be due either to a severe chill, or from feeding on food of too stimulating a nature.

Symptoms.—Extreme dulness, and chilliness of whole surface of body. The dung is dark colored and scanty, and the urine is dark in colour.

Treatment.—A mild purgative, followed by draughts of solution of chloride of ammonia, tincture of gentian, tincture of aconite and whisky, given once or twice daily, and chlorate of potash daily in drinking water.

A mustard poultice over the region of the liver on the right side will often greatly assist in effecting a cure.

Inflammation of the Liver (Hepatitis).—This follows unrelieved congestion of the liver, and is produced by the same causes.

Symptoms.—Yellowness of mucous membrane of eyes and mouth, tenderness on the right side, obstinate constipation, or what dung is passed is of a pale colour, and in cows the milk becomes ropy.

Treatment.—A full dose of calomel and opium, which may be repeated every thirty-six hours, until symptoms abate ; draughts the same as for congestion of liver. Repeated mustard poultices to the right side until skin is blistered. Warm soap and water clysters until bowels act freely, and to assist this an occasional laxative may be given. The liver often becomes disorganised (soft or wasted), from one severe attack or repeated mild attacks of inflammation, or from the presence of parasites, as in " fluke rot."

Jaundice is a symptom of disease rather than a disease in itself. It is produced either by a stoppage in the bile duct, or inaction of the liver.

The yellowness of the eyes and mouth, sometimes in acute cases even of the skin also, is the characteristic symptom.

Treatment.—The same as recommended in congestion of the liver.

Jaundice is often a sequel to "distemper" in dogs, and is caused in pets by feeding with sugar and sweet biscuits, &c.

Diseases of the Kidneys and Bladder.

Diseases of the kidneys and bladder are often not easily distinguished or recognised by a novice. The causes are colds, injuries, continued use of improper food or water, disease of other organs of the body, and the presence of parasites and calculi (stones.) The chief symptoms in kidney mischief are the suppression of urine, and indication of pain in the loins by stiffness and attempts of the patient to rub or bite itself in the part. When the bladder is the seat of mischief the urine is passed frequently in small quantities, attended with a considerable amount of pain and straining.

Treatment.—In all suspected kidney and bladder affections avoid giving medicines which act violently on these organs, as nitre, gin, whisky, &c. A dose of purgative medicine should be given at the outset, followed by draughts of solution of acetate of ammonia and tincture of aconite, with hot rugs and mustard poultices to the loins. Plenty of linseed tea, or solution of common gum should be given.

A skin of a freshly killed sheep placed on the loins is often an excellent thing, but it must not remain on for more than twenty-four hours, when a fresh one should be put on if necessary; if not put on warm clothing.

When a stone is present, of course, surgical aid is required. Male sheep often suffer from inflammation of the bladder when feeding on very ripe mangel wurzels owing to an obstruction caused by accumulation of certain chemical salts formed from the juice of the mangels in the vermiform appendage (worm) of the penis.

Symptoms are frequent and painful straining in the attempts to pass urine, and the usual signs of ill-health.

Treatment.—Slit open the "worm" and wash it out with warm water. Internally treat as recommended for kidney and bladder diseases, and, of course, take off or diminish the supply of mangels.

Venereal Disease, *scald*, *bullburnt.*—This is met with in sheep and cattle.

Treatment.—Give castor oil and balsam of copaiba internally, and apply "black wash" to the diseased parts. Isolate the patients until cured.

Diseases of the Womb.

Inflammation of the Womb (Metritis).—The contagious form of this disease I have treated with in the contagious diseases. The simple form is caused either by a chill or injury from the presence of a dead fœtus or retention of afterbirth (cleansing.)

Treatment.—Give mild purgative followed by draughts of hyposulphite of soda, tincture of cinchona and tincture of aconite in gruel. Syringe the womb out with warm water containing some Condy's fluid and laudanum. Support the patient's strength with nourishing food, gruel, milk, eggs, &c.

Remove the afterbirth (cleansing) when this is retained. This is especially important when a mare is the patient, for unless this is done in a few hours after foaling, they usually strain exceedingly and injure themselves, or septic metritis (blood poisoning) sets in.

Puerperal Fever.—This is brought on by the absorption of decomposing material into the system, through the womb, &c. It is common to all animals, sometimes being mistaken for "milk fever," parturient apoplexy in the cow.

Symptoms.—Great depression, shivering, straining attended by the expulsion of more or less dirty brown, badly smelling fluid

from the vulva. This disease has been described among the contagious diseases, under the head of "Septic Metritis."

Treatment. — Draughts composed of hyposulphite of soda, turpentine, sweet spirits of nitre, tincture of aconite and whisky, in oatmeal gruel, with occasional doses of sulphate of quinine, given in a ball, pill, or suspended in thick gruel. Syringe out the womb with warm water containing Condy's fluid or carbolic acid.

Parturient Apoplexy (Milk Fever).—Dropping after calving. This disease is only found in cows, practically never at the birth of the first calf, rarely with the second, frequently with the third and fourth. Some breeds (and districts) are much more liable to it than others, those giving very rich milk being most susceptible. Numerous theories have been advanced as to the cause of this disease, but its true cause is not known at present.

It usually appears within from six hours to three days after calving (it occasionally sets in even before delivery, and also a much longer time after than three days), and follows easy deliveries.

Symptoms.—The eyes assume an unnatural expression, the cow begins to shift her hind feet uneasily, and stagger when made to move, the bowels are generally costive, no milk or only very little can be drawn, and the breathing is at first accelerated. These symptoms increase until the sufferer gets down and is unable to rise, the neck is bent, and the breathing is attended with a low moan, often the cow becomes quite blind.

Treatment.—Keep the patient warm with plenty of rugs, &c., and in as natural a position as possible by propping her up with bundles of straw, bags stuffed with chaff, &c. As soon as discovered give a large dose of Epsom salts (1lb.), 4 drachms of powdered aloes, and two or three pounds of treacle. Follow this with a dose every three or four hours of aromatic spirits of ammonia and sweet spirits of nitre given in cold water. If the patient becomes unable to swallow (which frequently happens), stop giving any

medicine or gruel, &c., as many cows are killed by forcing fluids into their mouths when unable to swallow them, the fluid passing down the windpipe on to the lungs, and so setting up inflammation there. Occasional clysters of warm soapy water are also useful. When the patient begins to rally, only allow her small quantities of soft digestible food, such as scalded bran, crushed oats, gruel, &c.

As a preventive, keep the animal on "short commons" for a month at least before calving, give her plenty of exercise, and a full dose of Epsom salts, about a fortnight before calving, again about two or three days before she calves, and a moderate dose five or six hours after she has calved.

In very likely cases, in addition to the above, I have found great benefit from taking five or six quarts of blood two or three days before she is expected to calve.

Diseases of the Respiratory Organs.

Nasal Gleet.—This is a protracted discharge from one or both nostrils, and is the result of an inflamed condition of the lining membrane of the nasal sinuses, produced by an ordinary cold, influenza, a diseased fang of a tooth, or an injury.

The discharge is of a yellowish colour, sometimes tinged with blood, has an offensive odour, and varies considerably in the quantity of the daily discharge, indeed at times the quantity is so small for one, two, or more days as to lead one to think that the case is cured, but suddenly an enormous lot comes pouring down the nostrils.

Treatment.—These cases are often difficult to cure and sometimes an operation (trephining) is necessary; therefore beyond steaming the patient with deal sawdust, twice daily, and giving doses of arsenic daily for several days, it is not wise for an amateur to attempt treatment.

Horses are the chief sufferers from "nasal gleet."

Laryngitis (Inflammation of the Larynx).—This is a very distressing complaint and is apt to cause death by suffocation in a short time if it is not checked. It is brought on by colds, &c., or some acutely irritating material introduced through the mouth.

Symptoms.—Difficulty in "drawing in the breath" (inspiration) which is attended by a whistling or roaring noise. The patient shows evidence of great suffering, and unless speedily relieved is liable to succumb from suffocation.

Treatment.—Apply strong mustard poultices to the throat, and steam with hot water containing some solution of the extract of belladonna. Should no relief be speedily given, obtain the services of an experienced person. Place pieces (about the size of a cob-nut) of "electuary" in the mouth every three hours.

Tumours, &c., in the Throat.—It occasionally happens that a tumour or some other growth interferes with breathing. In such cases a surgical operation is usually necessary.

Roaring and Whistling.—When a roaring or whistling noise is made by a horse during inspiration (when drawing in the breath) it is said to be a "roarer" or "whistler," according to the character of the sound emitted. The noise is of course more pronounced, and in many cases, it is only discernible, when the animal is undergoing severe exertion or immediately after such exertion. The actual cause is some obstruction in the air passages, which obstruction in a case of true roaring is caused by atrophy (wasting) of the muscles which act upon the larynx (the top of the windpipe), always on the left side.

Various methods of treatment have been adopted, but so far without affording permanent relief.

Thick-Wind. — This is an impediment to breathing due to a thickened condition of the lining membrane of the bronchial tubes, generally the result of an attack of bronchitis. It often results in "Broken-wind." Treatment same as for broken-wind.

Broken-Wind. — This is a distended and often ruptured

state of the air cells in the lungs, which causes an extra or double amount of muscular action in expelling the air from the lungs when breathing.

Symptoms.—Laboured breathing, especially after violent exercise. A short, peculiar, dry cough is present. Although it renders the animal less able to perform its work, it does not usually interfere with the appetite.

Treatment. — Broken-wind when once established cannot be actually cured, although by judicious treatment it can be greatly mitigated and masked.

Preventives.—Never put an animal to violent exercise on a full stomach of either food or water. Do not give dusty food at any time. Linseed oil, cod-liver oil and arsenic given occasionally to a broken-winded horse will afford considerable relief.

All food that is supplied to a broken-winded animal should be moist, but not sloppy.

Bronchitis.—This is an inflamed condition of the lining or mucous membrane of the bronchial tubes.

It is caused by cold, by the introduction of any irritating material, such as irritating fumes, smoke, &c., or fluids or solids which have passed down the windpipe.

The careless or injudicious administration of medicines is not an uncommon cause of bronchitis.

All animals are liable to suffer with it.

Symptoms.—A distressing and oft-recurring, or almost continuous cough, is the characteristic symptom.

Treatment.—Inhalations of steam afford great relief. Occasional doses of belladonna, ipecacuanha wine, syrup of squills and sweet spirits of nitre in linseed oil or liquorice water should be very carefully administered. The electuary prescribed for laryngitis may be given several times each day.

Soft moist food must be allowed, and the patient kept from cold irritating air, and great changes of temperature.

Pneumonia (Inflammation of the Lungs).—Inflamma-

tion of the lungs may be produced either by an ordinary chill or cold, by the presence in the lungs of any irritative material, such as worms, &c., by impurity of blood caused by the disease of other organs (hence pneumonia often accompanies, or is a sequel to, several blood diseases), and by direct injury.

Symptoms.—More or less difficulty of breathing, coldness of legs, ears, &c., a dirty red condition of the eyes, mouth, &c., the sufferer rapidly becomes weak and listless. A cough is generally present, but is often not very marked unless bronchitis is also present, and this fact frequently misleads amateurs, who usually fancy a cough is necessarily one of the chief symptoms of inflammation of the lungs.

Treatment.—Place the patient in a loose box, clothe the body well with dry warm rugs, hand rub and bandage the legs, and allow plenty of fresh air but avoid draughts. Give belladonna, tincture of aconite, solution of acetate of ammonia and sweet spirits of nitre every four or six hours, and put nitrate of potash and chlorate of potash in the drinking water. When the feverish symptoms have passed off and the patient's breathing becomes more natural, tincture of gentian may be given instead of the belladonna and tincture of aconite, and dialysed iron mixed with the food or administered in the form of a draught. Keep up the patient's strength with good nourishing food, new laid eggs, milk, beef tea, port wine, &c.

If the cough is troublesome a few doses of ipecacuanha wine, compound tincture of camphor and syrup of squills are very beneficial, especially for dogs.

Cod liver oil also is an excellent tonic for all animals after an attack of pneumonia.

Mustard poultices or hot rugs to the sides afford great relief in early stages, but should not be employed in the later stages of the disease.

Husk, Hoose, or Hoast.—These are names applied to a form of bronchitis or broncho-pneumonia, which is caused by the

presence of worms in the windpipe and bronchial tubes of young cattle and sheep, the eggs or young worms being picked up in moist pastures, &c.

Symptoms.—A peculiar, husky, short cough is the characteristic symptom, accompanied in bad cases by unthriftiness and often diarrhœa. The worm is the *strongylus micrurus* in cattle and *strongylus filaria* in sheep.

Treatment.—Turpentine and tincture of assafœtida given in linseed oil on an empty stomach two or three times a week will effect a cure in the early stages. Fumigating with brimstone (sulphur), or carbolic acid and the injection of a special preparation into the windpipe are often resorted to in bad cases, but these require care and experience, or much harm may be done. Good food containing sulphate of iron and common salt should be allowed. All affected pastures should be dressed with gaslime or salt to destroy the germs of the disease.

Pleurisy.—Inflammation of the lining of the chest and the outside of the lungs, may occur as an independent disease, or it may accompany pneumonia. Severe chill and injury are the common causes of pleurisy. Sheep are frequently attacked with this disease during inclement weather immediately after washing and shearing. A special form of pleurisy is not unfrequently met with in cattle, caused by the passage into the chest of a piece of wire, needle, pin, or some such body, when it generally makes its way towards the heart, and occasionally actually penetrates it.

Symptoms.—The chief symptoms of pleurisy are stiffness, the sufferer giving evidence of acute pain when made to move, and each respiration is attended with a moan or a grunt. There is also a peculiar harsh leathery sound distinguishable on listening to the breathing at the chest-walls. A dry painful cough is also commonly present.

Treatment.—Give a draught composed of tincture of aconite, sweet spirits of nitre and solution of acetate of ammonia in water, every four or six hours. Apply hot rugs and mustard poultices to

the chest. Keep the patient well clothed and give good nourishing food. Give chlorate and nitrate of potash in the drinking water, and as the severe symptoms abate, dialysed iron in the food once or twice daily.

Pleurisy, when unchecked in the early stages, results in effusion of fluid (water) in the chest, and when this takes place it (the fluid), should be removed by the operation known as "tapping," which of course must be performed by a skilled person. In cases where only a small quantity of water is present, it may be removed by absorption by giving doses of iodide of potassium once or twice daily for a considerable time, in addition to good food and tonics.

Diseases of the Skin.

The diseases which attack the skin of domesticated animals are so numerous that a full description of them would make quite a book, besides which it is difficult for even veterinary surgeons to distinguish many of them. In such a work as this, for all practical purposes, it is only necessary to refer to them as those of a scaly nature, where there is no actual running sore, and those where running sores are the prominent feature.

As a local application to skin diseases of a scaly nature, there is perhaps no better, safer and simpler treatment than to dress them once or twice with a dressing composed of equal parts of paraffin and olive oil, and $\frac{1}{4}$ part of flour of sulphur mixed well together; in three or four days wash this off with soft soap and water. Repeat the dressings if necessary.

An excellent lotion for skin diseases when there is a running sore, is made as follows :—Solution of subacetate of lead, $\frac{1}{2}$ ounce; solution of sulphate of zinc, $\frac{1}{2}$ ounce; carbolic acid, 2 drachms; glycerine, 2 ounces; water, $1\frac{1}{2}$ pints. Dissolve the carbolic acid in the glycerine, then add the water and afterwards the other ingredients. This should be applied once or twice daily.

Internal medicines always greatly assist in curing skin diseases, and in many should form the principal part of the treatment. The preparations of sulphur and arsenic are those generally employed for this purpose, but of course the latter requires care and judgment in its use.

Mange in all animals should be treated by a skilled practitioner, it being a parasitic disease and some forms of it very difficult to cure in both horses and dogs.

Vermin.—Paraffin and train oil mixed in equal proportions, well brushed into the coats of horses, cattle and pigs will effectually destroy these pests.

Oil of aniseed, 1 part, spirits of camphor, 1 part and olive oil, 6 parts, answers well for this purpose in dogs.

Warts are growths of the epidermis or outer skin in the early stages, but later the true skin is affected. When large they are best removed with a sharp knife or a hot iron. When present in large quantities, or in such positions that direct removal is impossible, dress them daily with an ointment composed of chloride of ammonia 1 part, powdered savin 2 parts, and vaseline sufficient to make a stiff paste or ointment. A little oil of thuja may be added to the above, if necessary, to increase its strength.

Ringworms are vegetable fungi growing on the skin of animals. Paraffin, or simple sulphur ointment, if thoroughly applied, will readily destroy ringworms in the early stages. When dressing ringworms, the scurf should first be rubbed off with some rough substance, such as emery paper, and then the dressing applied to and a little *beyond* the apparently diseased place.

It is very contagious, and all walls, mangers, posts, &c., where animals affected with ringworm have been lying, should be well washed with some strong disinfectant ; a strong solution of sulphate of iron (green vitriol) is perhaps as safe and effectual as anything.

Worms.

All kinds of domesticated animals, especially when young, are liable to become infested with intestinal parasites (worms), of which there is a great variety, but for all practical purposes, in a small work like this, they may be divided into three sorts : (1) roundworms ; (2) tapeworms ; and (3) flukes. Some of these, indeed most of them, pass through a curious life cycle before attaining maturity, during a portion of which they inhabit the body of quite another sort of animal from the one in which they become fully developed and capable of propagating their species.

Thus one kind of tapeworm which infests the dog, during one portion of its existence, is in the form of cysts (watery bladders) in hares and rabbits, another in the brain of sheep, and so on, while the common fluke, at one period of its life, while developing from the egg to maturity, inhabits the body of a kind of snail. It is important to bear in mind the fact that unless these intermediary bearers are forthcoming, no worm can become fully developed, but soon perishes, and it is because of this that we are able in some measure to prevent or check the devastation wrought by worms, by destroying these "intermediary bearers." The systems of some animals are particularly suitable to the development of worms, while others, living and feeding exactly the same, escape.

Worms, when present in large quantities, are always injurious, causing debility, depraved appetite, and loss of flesh.

Treatment : Roundworms are expelled by giving santonine in a little food, a ball, or pill, on an empty stomach, followed in a day or two with a draught composed of turpentine, tincture of asa-fœtida, and linseed oil, also given on an empty stomach, and sulphate of iron given daily in the food for a fortnight or three weeks after.

Tapeworms.—Areca nut is about the best thing for getting rid of tapeworms, followed by a draught composed of turpentine and gum ammoniacum rubbed up with water, given in linseed oil, which

may be repeated at intervals of about a fortnight so long as necessary. Sulphate of iron is also useful in these cases.

Flukes.—The common fluke is well known as the cause of liver rot, and is the only one of that tribe that need be discussed in this book.

When once the liver of a sheep or other animal has become infested with flukes, there is no known way of getting rid of them without destroying also the animal that harbours them. As a preventive, sulphate of iron and common salt are useful, given in the animal's food daily for a considerable time. Sheep feeding on salt marshes are not liable to fluke rot.

NOTE.—It is important to remember that all worm medicines should be given after the patient has fasted for several hours, and that no food should be supplied immediately after the medicine.

Bots.—These are the larvæ of the œtrus equi, commonly known as "horse bees." They are found in the stomach of horses &c., in the winter and spring, passing away through the bowels in the early summer months.

Warbles.—These are the larvæ of the œstrus bovis, or ox gadfly, and are found just under the skin of young cattle. All warble "grubs" should be destroyed either by killing them while still in their winter quarters under the skin of their host, which can readily be done by applying some sticky ointment to the hole in the skin through which the "warble-maggot" or "grub" obtains air; or by squeezing them out when "ripe" and crushing them.

Sheep Bots are found in the nasal sinuses of sheep, and are the larvæ of the fly which troubles sheep so much in the summer, causing them to run together, pushing their noses on the ground or against their fellows, in their efforts to avoid the fly gaining access to their nostrils, which it is endeavouring to do, to deposit eggs for the preservation of its kind.

Maggots are the larvæ of another kind of fly, and are so wel known as to need no description. They can be safely dislodged with ordinary paraffin. Maggots in sheep are readily despatched by a mixture of paraffin, turpentine and colza oil, in equal parts.

Wounds, Strains or Sprains, Bruises, &c.

All wounds that are not immediately over or close to a joint, are best treated, after cleansing them from dirt, &c., by applying hot fomentations, hot bandages, poultices or rugs, according to the position of the injury, and by the application each time when the fomentations are discontinued, or several times a day, of a cooling lotion, composed of subacetate of lead ½ ounce, spirits of wine ½ ounce, water 1 pint; 1 ounce of laudanum may be added when the pain is very acute.

When a wound extends into, or is close to a joint, continuous cold applications are best, until all fear of an abscess forming has passed; 1 ounce of acetic acid added to the above lotion will assist in keeping the part cool, &c. Deeply cut knees should be treated in this way.

Punctured wounds, that is, wounds which are small in size, but penetrate deep into the flesh, &c., should be kept open by putting in fine tow, saturated with carbolised oil, by means of a probe, or quill of a feather. Carbolised oil is a good dressing for all external wounds, except those in connection with the eyes.

Wounds in the feet should be poulticed, and free vent given to matter when this is present, which is often the case in foot injuries, and some carbolised oil poured in daily, so long as necessary.

Wounds penetrating the chest, abdomen, &c., are always very dangerous; a bandage should be at once applied over the seat of injury to prevent the escape of contents of body, and prevent the entrance of air, and professional aid should be procured without delay.

Sprains or Strains.— Hot fomentations, applied at once quickly relieve the pain of a sprain. The use of the cooling lotion recommended for wounds, also greatly tends to check inflammation. When the pain and tenderness have subsided, such stimulating liniments as opodildoc or white oils may be occasionally rubbed on the part, and if after a reasonable time lameness or tenderness still exist, a blister should be applied.

Bruises. — Hot fomentations and frequent applications of cooling lotion are all that are required in ordinary bruises, but should any permanent enlargement remain, dress it several times (if necessary) with an ointment composed of biniodide of mercury 1 drachm, well mixed with 1 ounce of lard, repeating each dressing when the scurf raised by the previous application has peeled off, which is usually in about a fortnight or three weeks.

Other Diseases and Ailments.

Abortion, Slipping, or Casting the Young (*Commonly called "picking," "slinking," "kebbing," &c.*).—Abortion is of two kinds. One is a contagious kind, which is easily conveyed from one animal to another, either directly or through the medium of the attendant, &c., or even by a male that has had connection with an animal that has aborted, subsequently serving a healthy one, and so introducing the virus or "abortion poison" into the genital organs of the latter.

The non-contagious form of abortion may be caused by injuries, bad water, mouldy and indigestible or unsuitable food, disease of the genital organs, fright, or extreme excitement.

Whenever abortion occurs, the animals should be at once isolated, as it is not easy to tell a contagious from a non-contagious case until several such have occurred. The genital organs should be syringed out daily with a disinfectant, such as Condy's fluid in warm water, or "Nocard's solution," as long as any discharge comes from the vulva of the patient. All dung, litter, straw, &c., that is contaminated should be burnt, or thoroughly mixed with quicklime, and all places should be completely disinfected, and some considerable time allowed before the animal is again permitted to receive the male.

An animal that has aborted is usually to some extent feverish, therefore a few doses of hyposulphite of soda and tincture of

aconite are very beneficial, with some chlorate of potash in the drinking water, and a dose of laxative medicine if the bowels are costive.

Abscesses.—When a part becomes so inflamed from injury or otherwise that a deep-seated gathering is formed, it is called an abscess.

Treatment.—When an abscess is forming every endeavour should be made to "draw" it to the surface, that is, to induce the matter it contains to work towards the skin so that it can be freely evacuated when ripe. Hot fomentations, poultices, accompanied by mild stimulating liniments greatly assist in "drawing" an abscess. When this process is very slow, as sometimes happens, one or two dressings with iodine ointment will facilitate matters.

It is usually better (in the lower animals) to allow an abscess to "break" of its own accord, but when it is quite ripe, or tends to interfere with a joint, it may be lanced, taking care to do this in such a position that as much of the matter is emptied out as possible.

All that is necessary when an abscess is opened is to keep it clean and dress once or twice daily with carbolised oil, keeping the surface well open until the deeper parts have healed.

Apoplexy, or Apoplectic Fits. Staggers.—Ordinary apoplexy is the sudden engorgement of the vessels of the brain with blood, resulting in rapid loss of voluntary movement and consciousness.

Animals fed on highly stimulating food, and that have not sufficient exercise, are those chiefly attacked, especially in hot weather or sudden atmospheric changes. It occurs in all animals.

Symptoms.—The animal suddenly staggers, and soon falls, being unable to rise again ; the eyes are red and bloodshot, the muscles paralysed, urine, &c., voided involuntarily ; coma quickly sets in, and death often soon takes place. In less severe cases the animal may rally after a time, but generally with permanent loss of the proper use of some part or parts of the body.

Treatment.—Bleed freely in early stages. Apply ice or cold water to the head. Keep quiet, and give a purgative as soon as the patient can swallow easily. Avoid all excitement for a long period after an attack, and feed regularly and plainly.

Bog Spavin is the name applied to a chronic distension of the synovial cavity of the hock joint. The swelling is visible at the inside-front of the hock, and is soft and pliable to the touch, giving one the impression that it is filled with air, hence it is sometimes called "wind spavin." It does not usually cause lameness except in very bad cases.

Treatment.—Apply iodine ointment, and follow this with the application of a truss, or what is perhaps better on the whole, a "mercurial charge." It is only common in the horse, and is often produced by a sprain.

Bone Spavin.—A bone spavin is a bony deposit or growth on the inside front or inside of the hock. A bone spavin very often causes acute lameness, especially when the animal is first moving after standing still some time previously. When a bone spavin is in the course of formation, a considerable amount of inflammation is present, and it is during this process that lameness is most marked.

Treatment.—While acute inflammation is present, cold water applications, and cooling and soothing lotions, as "Goulard's water," with laudanum added, are most suitable. When a bone spavin becomes well developed, blistering, firing, or the performance of tenotomy are the only means of giving relief.

This also is only common to horses and donkeys.

Braxy is the name given (especially in the north of England and Scotland) to a variety of diseases attacking sheep, but the ailment to which it is most commonly applied is really a form of anthrax, which is dealt with in the diseases coming under "The Contagious Diseases (Animals) Act" (see page 14).

Canker.—This is a diseased state of the secretive portion of the frog and sole of the foot. It occurs especially in heavy horses, and when well established is very difficult to cure.

Treatment should always be under the direction of a skilled practitioner.

Capped Elbow.—The same remarks apply to this as to capped hock, the bruise being generally caused by the horse lying down with the elbow resting on the heel of the shoe. To prevent this, proper "boots" are made which can be obtained from any good saddler.

Capped Hock.—When an animal bruises the point of the hock to such an extent that a permanent soft swelling remains, it is called a "capped hock."

Treatment.—In early stages, cold water applications and cooling lotions, such as advised for ordinary bruises. When the inflammation has abated, repeated light blisterings, with iodine ointment.

Cataract is a disease of the internal structures of the eye. Beyond using the above lotion to allay inflammation, no treatment should be attempted by an amateur. It is common in horses and dogs.

Cracked or Chapped Heels.—Wet and cold operating on the skin of heels, especially of some horses, very often set up acute inflammation, resulting in a crack or chap which is painful, causing the horse to suddenly catch or jerk up the affected leg, if a hind one, when first made to move after standing still for a time.

Treatment.—Do not wash the heel or heels, but in order to cleanse them when dirty, wipe with a dry or only slightly moist cloth, put on a dry meal poultice composed of equal parts of dry oatmeal and bran, and apply night and morning an ointment composed of carbonate of lead 1 ounce, iodoform ½ ounce, vaseline 4 ounces. Mild cases do not require poulticing, the ointment being sufficient alone to effect a cure.

The custom of clipping out the heels and washing them with water without subsequently thoroughly drying them, or allowing the horse to stand in a draught after the process are the chief causes of this affection

Crib-Biting.— This is a habit and not a disease, although it may produce disease by causing the stomach to become unnaturally distended by the air which is swallowed during the act of crib-biting, or cribbing, as it is commonly termed.

The horse takes hold of the manger or any other suitable place with his teeth (or pitches the upper teeth on the object) and sucks in air, producing at the same time a grunting noise.

Treatment.—The only way of preventing this is to use one of the various straps or muzzles made especially for the purpose, or put the animal in a loose box with perfectly smooth walls and having no manger, all food being placed on the ground ; there being no suitable point on which to exercise the habit, it is discontinued.

Fistula is exactly of the same nature as poll-evil, only that it usually occurs on the withers and neck of working horses. The same remarks apply to it as to poll-evil.

Foot Rot.—This disease is found in sheep and goats. It occurs in two forms : a contagious form, in which, when existing on soil suitable to the development of the virus which propagates it, it is readily conveyed from an affected to a healthy sheep.

A non-contagious form is caused by the insinuation of sand, grit, &c., into the sensitive parts of the foot through small cracks in the hoof or sole.

Treatment.—Carefully pare away all diseased parts of the hoof, and apply one of the many dressings advocated. Pure carbolic acid, strong solution of chloride of zinc, butyr (or butter) of antimony, sulphuric acid and tar ointment, containing alum, verdigris, sulphate of copper and tar, are all very useful in the cure of foot-rot, but really more depends upon the mode of dressing than in the special virtue of any one of these remedies.

It is worthy of notice that a sheep suffering from a contagious form of foot-rot, *when removed to a soil which is unfavourable to the development of the disease*, will recover without any treatment, and will not contaminate other sheep on that soil. This fact has

led many to the erroneous conclusion that foot-rot has no contagious form.

Galls, or Shoulder and Wither Sores.—These are caused by badly fitting or unclean harness, or by working horses too hard when in an unfit condition.

Colts when first broken are liable to get their shoulders galled or "wrung."

Treatment.—Alter or clean the harness, rest the patient and apply the lotion recommended for "mud fever."

Mallenders and Sallenders.—The name of "mallenders" is applied to a cracked condition of the skin in the front of the hock, and "sallenders" to a similar condition of the skin at the back of the knee.

Gross conditioned horses are the subjects of these, and they are sometimes difficult to cure. Apply an ointment composed of carbonate of lead ½ ounce, carbonate of zinc ½ ounce, vaseline 4 ounces; if the sores are tardy in healing apply a little mercurial ointment once a week.

Mammitis (Inflammation of the Udder.)—This is a disease somewhat common in cows and sheep, and it is occasionally met with in mares, sows and bitches. It is caused by injuries, severe chills, and the imperfect withdrawal of milk; a sudden change from a poor to a generous diet will help to develop it, and it is from this reason that we sometimes meet with it in cows that have been several weeks dry, a "flush" of young grass after a dry time being a common cause of its appearance in these cases.

Symptoms.—Those of suffering generally, and the hot, tender and swollen condition of the udder causing stiffness when the animal is made to move, owing to the pressure of the thighs on the gland during progression. "Dregs" appear in the milk, or rather this fluid becomes separated into a kind of curds and whey.

Treatment.—A purgative dose of Epsom salts in the case of cows and sheep, castor oil for mares, sows and bitches, followed by a draught, given twice daily, composed of bicarbonate of soda

sweet spirits of nitre, tincture of belladonna, tincture of aconite and sufficient water to form a draught.

The milk should be frequently drawn from the udder, hot fomentations used two, three, or more times a day, according to the severity of the case, and the following liniment rubbed on the udder each time after the fomentations. Compound camphor liniment 1 part, olive oil 4 parts, well shaken together, and in bad cases 1 part of laudanum may also be added with advantage. (A mixture of vinegar and treacle in mild cases may be used instead of the above liniment.) Hop poultices are very good when the pain is excessive, but of course there is some trouble in keeping these closely applied to the udder.

When the inflammation is sufficiently intense to induce abscesses to form or for mortification to follow, the treatment must be the same as that recommended for ordinary abscesses, or in the case of mortification, the part must be dressed with carbolised oil, and the patient's strength kept up with good nursing, stimulants and tonics, as in blood-poisoning.

Measles.—Pigs appear to be the only victims among the lower animals that suffer from true measles ; what is very commonly termed measley beef or pork being meat that is infested with the encysted form of tape-worms, which attain maturity in the human being.

Symptoms of true measles : the animal is feverish, is very sensitive to cold, loses its appetite, the bowels are somewhat costive, and raised reddish or purple blotches appear about the body, especially along the back and quarters. It is not often fatal if properly treated, but it is very frequently mistaken for "swine fever," with which disease it has no connection.

Treatment.—A moderate dose of Epsom salts, followed by two or three doses daily of solution of acetate of ammonia, sweet spirits of nitre and tincture of aconite.

The blotches in the secondary and later stages itch excessively which causes the animal to rub itself against walls, posts, &c., and

to prevent or check this, some oil, preferably oil of sweet almonds, may be rubbed on the skin daily.

Megrims.—This affection is caused by a temporary irregularity of circulation of the blood in the brain. It is only seen in horses when at work, and is most common in harness horses, especially in the spring of the year.

Tight-fitting collars, heavy loads, hot sun, and system derangement, or weak heart are the chief predisposing causes.

Symptoms. — The animal suddenly stops, shakes its head, twitches its ears, hangs the head on one side, staggers, runs backwards, to one side, or blindly forwards, begins to sweat profusely, and often falls to the ground.

When these symptoms abate, which they usually do in a time varying from two or three minutes to a quarter of an hour, the animal regains its normal condition, and is able to proceed on its journey.

Treatment.—Beyond allowing the animal to stand quite still and loosening the harness, especially the collar, there is little that can be done when an attack has actually commenced. As preventives, bleeding in the early spring, an occasional dose of physic (purgative), and bromide of potassium given for several days in succession at intervals of two or three weeks, are the most useful.

Mud Fever is of a similar nature, the mud splashing up the legs and assisting wet and cold in the irritation of the skin.

The same remarks as to keeping dry, avoiding chills when the skin is heated, and the custom of clipping adding greatly to its prevalence apply to this, as to chapped heels.

Treatment.—Do not wash with water, but apply three or four times a day a lotion composed of solution of sub-acetate of lead 1 ounce, solution of sulphate of zinc 1 ounce, water, 1½ pints glycerine 3 ounces.

Navicular Disease (sometimes called by the ignorant chest founder).— This is an ulcerated condition of the navicular joint

(which is situated in the deep structures of the foot). It occurs in the fore feet of horses.

Causes.—Hereditary predisposition, and probably either compression or concussion, or perhaps both.

Symptoms.—Lameness on one or both fore limbs. The animal has a careful stilty mode of progress, especially when going down hill (hence the name of chest founder, which, by the way, is also sometimes applied to laminitis, fever in the feet, for the same reason). When in the stable the sufferer often "points" the affected foot or feet, that is, he stands with it set forward. Rest does not give relief, but in the early stages the lameness is often intermittent, the animal sometimes starting quite sound, and then suddenly falling lame, the lameness perhaps passing off again before the end of the journey is reached. At other times lameness is present continually for days or weeks, interspersed with periods of freedom from apparent lameness.

It is most common in roadsters having a moderate action. It is often very difficult to detect, but the absence of any other cause of lameness helps to give the clue to the seat of mischief.

Treatment should never be undertaken by an amateur beyond applying cold water bandages or blisters to the coronets, but in all suspected cases it will be found more satisfactory to consult a veterinary surgeon.

Ophthalmia.—Inflammation of the eyes may be produced either by the presence of some foreign body in the eye, such as a piece of chaff, dust, &c., an injury or cold in the eyes. It also frequently accompanies, or is a sequel to, influenza in horses and distemper in dogs.

Treatment.—Remove the cause, and bathe the affected eye or eyes with equal parts of new milk and water, after which allow a few drops of the following lotion to drop into the eye : solution of alum 2 drachms, laudanum ½ ounce, distilled water 6 ounces.

Overstocking.—Much pain and discomfort are caused by overstocking cows for the purpose of giving them a more saleable

appearance. The inspectors of the R.S.P.C.A. now give attention to these cases.

Parturition. — All breeding female animals require extra care for a few days before, during, and a few days after the act of delivery (parturition). Many animals require no assistance in delivery, indeed many casualities occur from over-zealous attendants unnecessarily interfering at this time, but a good experienced attendant will, while avoiding unduly exciting the animal by his continual efforts to assist, when parturition actually commences, make an occasional examination to ascertain whether or not everything is progressing naturally and satisfactorily, and if such is the case, he will *leave well alone;* but on the other hand, if he finds that there is anything going wrong, such as a foot or head pitching in the passage, he will at once attempt to rectify matters, and should he fail to do so, will, without delay, endeavour to obtain the services of an expert. Many people overfeed animals immediately after delivery, and especially is this the case with sows, indeed I believe more sows are killed annually in this way than from any other ordinary disease.

Tepid water and good digestible food should be given to all animals for a few days after parturition, and if the weather is bad ample protection should be afforded. Most females have a tendency to eat the afterbirth, and it is a debatable point whether or not this (natural) predisposition is injurious. Of course, if an animal has eaten the afterbirth, and is unwell in any reasonable time after, this is set down, rightly or wrongly (wrongly as I believe in many cases) to be the cause, but as it certainly is a most natural proceeding, and does not arise from a depraved appetite, I am inclined to believe that it seldom (except by occasionally choking the animal) does harm.

I am a strong advocate of the more frequent employment of antiseptics, particularly to the hands, &c., of an assistant at the time of parturition.

Pericarditis.—This is inflammation of the outer covering

of the heart. The causes and symptoms are similar to those of pleurisy, which disease is often associated with it to some extent. When pericarditis is present there is evidence of great suffering, this being shown in cattle by distressing moaning, and on listening to the side of the chest the heart's action is indistinct or muffled, in the earlier stages, while later, water is exuded into the pericardial sac (heartbag) when a splashing or gurgling sound can be heard, and there is generally more or less swelling at the front part of the chest, between the forelegs, and at the lower part of the neck.

Treatment.—Similar to that for pleurisy, with tincture of digitalis added, in well developed cases ; however, temporary relief is usually all that can be obtained.

Poll-Evil, although commonly considered a distinct disease, is nothing more or less than an abscess in the poll ; the reason why it is difficult to cure being that the position is one in which it is very awkward to get an opening so that the matter will run out as it forms, and by the movements of the head the matter tends to burrow down in between the muscles of the poll, so making it still more serious.

Prolapsus or Protrusion.—This is a protrusion of some part of the genital organs, in the female, or, as occasionally happens, the rectum, in either sex. It occurs in all animals, especially at or near the time of parturition. If it is slight, and can be easily returned, this should be at once done after cleansing it by washing with warm water, after which it must be secured by placing on clamps made for the purpose, or sewing the edges of the vulva or anus loosely together, allowing sufficient space for the passage of urine and dung. A little tincture of myrrh and aloes applied with a feather is useful. In all bad cases professional aid should be obtained.

Quinsy.—This distressing disease of the throat is met with in pigs, dogs and cats. It is really an abscess in the throat.

Symptoms.—Excessively sore throat, causing disability and disinclination to feed, with tenderness of the throat on pressure.

Treatment.—Hot fomentations and poultices to the throat externally, and pieces of an electuary composed of chlorate of potash, extract of belladonna, powdered liquorice root, and sufficient treacle to make the whole into a stiff paste, to be placed on the patient's tongue three or four times each day. Do not attempt to force food or liquids down the sufferer's throat until the abscess has broken.

Quittors occur on the coronets of horses. Festered or gathered corns are a very common cause of quittor, the matter not being able to get vent below, forcing its way to the coronet, where it is able to escape. Bruises on the coronet, when deep-seated, also often terminate in a quittor.

Rickets.—This is essentially a disease of young animals. It is common in calves, foals, lambs, puppies, and is occasionally met with in young pigs.

The causes are, insufficient supply or mal-assimilation of bone-forming material.

Symptoms.—The bones of a "rickety" animal bend, the joints enlarge, causing the sufferer to have a reeling or imperfect motion, and there is often indigestion accompanied by diarrhœa.

Treatment.—Give good wholesome food, cod-liver oil, syrup of phosphates (Parrish's Chemical Food), tincture of gentian and limewater.

The young of some breeds of dogs are especially liable to suffer from rickets.

Ringbone. — There are three kinds of ringbone, viz., high, low and false. A high ringbone is a bony deposit or growth at the upper head of the long pastern bone (os suffraginis), and encroaching on the fetlock joint.

Low ringbone is a similar deposit at the lower head of the long pastern bone, often extending on the upper head of the (os coronæ) coronet or short pastern bone, thereby interfering with the coronet joint. This is the most common form of ringbone.

False ringbone.—When the deposit is on the shaft of the long

pastern bone and does not extend to either end, it is called false ringbone. A ringbone does not necessarily extend all around the bone.

Causes.—Hereditary tendency, concussion, injury, &c.

Treatment.—Similar to that recommended for splints; leathers or india rubber pads under the shoes often greatly relieve the lameness caused by ringbones.

Sandcrack.—This is a splitting of the hoof, commencing at the coronet and extending downwards towards the sole. It is caused by concussion on hard ground. It occurs (usually) in the front part of hind feet and the inside quarter of fore feet of horses.

Treatment.—The separated hoof-fibres will not reunite, therefore the objects to be aimed at are to prevent the opening and closing of the crack, and to do this, the application of clamps made especially for the purpose, or the operation of riveting, are the best, aided by sideclips on the hind shoe when the front of the hind foot is the part affected, and a bar shoe when it is the fore foot, easing the bearing directly under the crack.

The second object to be attained, viz., the growth of a new sound hoof, may be accelerated by the occasional application of a light blister (cantharidine) to the coronet.

Seedy Toe is a diseased state of the inside portion of the hoof and sole (laminæ) of horses' feet. It is generally a sequel to fever in the feet. It consists of disintegration of the parts above-mentioned, leaving a space between the crust of the hoof and the quick or sensitive part, which contains dark, crumbling material.

Treatment.—Open the diseased part, clear out all diseased material, pour in some carbolic acid or butyr of antimony, fill up the space with Stockholm tar and tow, put on a shoe with side clips instead of toe clip. Repeat the dressings every four or five days, as long as required.

Sidebones.—A true sidebone is calcification of the cartilage (gristle), which is attached to the upper and posterior part of the os pedis (footbone).

Causes. — Same as ringbone, repeated bruises from treads greatly aiding their development.

Treatment.—Same as for ringbone, with the addition, in well pronounced cases where lameness is present, of Professor Smith's operation, which consists of cutting through the hoof at three or four places from coronet to sole, and separating the sole from the wall of the hoof immediately under the sidebone. This operation has proved very successful in many cases, when carefully and skilfully performed.

Sore Teats.—Sores on the teats of cows are very troublesome on some farms, and the fact that it is more common in some localities than others may be accounted for by the difference in the soil, the feeding and general management of the cows, and the carefulness or carelessness of the milker.

Treatment.—Use a lotion composed of 2 scruples of sulphocarbolate of zinc dissolved in a teacupful of rain water, three or four times each day, and each time *after* milking apply an ointment made of carbonate of zinc 1 part, and vaseline 4 parts, thoroughly mixed.

Care should be taken to cleanse the teats before milking, or particles of the discharge from the sores may get into the milk, and if the disease be contagious or inoculable, as "cow pox," serious results may ensue.

Splint. — A splint is a bony growth on either of the long bones, between knee and fetlock or hock and fetlock. Splints are most common on the fore-limbs of horses. They possess an importance or not (so far as the usefulness of the animal is concerned) according to their situation and stage of development, because a very small splint at the back of the bone under the tendons or near the knee-joint may cause excessive lameness, whereas a much larger splint situated on the front of the bone and away from the knee may not cause any perceptible inconvenience. Splints, like spavins and all other bony growths, are apt to cause more lameness when they are forming (because at that time more

or less inflammation is always present) than when they are fully developed.

Treatment.—Cold water bandages and cooling lotions in early stages; iodine ointment or biniodide of mercury ointment, applied several times, not too severely, in later stages. In very bad cases, point firing may be had recourse to.

Stringhalt is the name given to a peculiar jerking up of one or more of the limbs, usually the hind. It is caused by irritation to the main nerve trunk supplying the part.

Treatment.—Not satisfactory.

Sturdy, Gid, Turnsick, or Turnside is a disease which affects the sheep, and is caused by the presence in the brain of cysts (watery bladders) formed during the life cycle of certain tapeworms which attain their adult form in the bowels of dogs. The segments or joints of the tapeworms containing eggs, pass from the dog and drop on pasture, when the eggs being liberated, sheep take them into their stomach with the food. The young being hatched they bore their way into a blood vessel, and are carried by the blood stream into the brain, where they bore their way out of the blood vessel and penetrate the brain substance, in which situation they develop the cysts above-mentioned. Each cyst, when eaten by a dog, is capable of producing a large number of tapeworms. I have myself fed a dog with a fresh cyst, and was truly surprised at the immense number of worms developed from one cyst.

It is the pressure of these cysts on the brain that causes the symptoms characteristic of this disease, which are chiefly a tendency to continually move round in a circle, and semi-consciousness or semi-blindness, or both.

Treatment.—Puncturing the skull and destroying the cyst is the only successful treatment, and this is attended with some risk.

Swelled Legs.—Ordinary swelled legs are the result of either debility, insufficient exercise, or undue exercise with the system in not a thoroughly robust or "fit" state. It is caused by a congested state of the blood-vessels of the legs.

Treatment. — Good wholesome food, regular, but not undue exercise, hand-rubbing, dry-bandaging, and in bad cases the application of a lotion composed of dilute acetic acid 8 ounces, chloride of ammonia 1 ounce (powdered), spirit of camphor 1 ounce.

Thorough Pin is a swelling at the upper part of the hock, which usually extends *through* or from one side to the other. The same remarks may be applied to it with regard to its causes, nature and treatment, as those given under the head of "Bog Spavin," with which, indeed, it is frequently associated.

Thrush.—This is the name applied to a diseased state of the glands in the frog of the feet of horses.

Symptoms.—A whitish and badly smelling fluid issues from the frog.

Treatment. — Dust a little calomel (subchloride of mercury) into the cleft of the frog each alternate day for a week, and follow this with an ointment composed of burnt alum (powdered), 2 ounces, sulphate of copper (powdered) 2 ounces, sulphuric acid 1 drachm, Stockholm tar 6 ounces; mix thoroughly and apply daily on a piece of tow, pushed well into the cleft of the frog.

Trichinosis.—This disease affects pigs and human beings, being transferred from the one to the other.

It is due to the presence in the muscles of small worms during one stage of their life cycle.

It occasions considerable mortality in Germany and other continental countries, owing to the fact that pork is there eaten in a semi-raw state, and so the worms which are frequently present in the meat escape destruction. The name of the worm is "Trichina Spiralis."

When an outbreak of trichinosis occurs in England, it is almost invariably from the importation of German meat. The symptoms (in the human subject) closely resemble those of acute rheumatism. Pigs do not appreciably suffer from the presence of these worms.

Vertigo is similar to megrims, but differs from it by occur-

ing when the animal is resting as well as when at work, the effects of an attack being apparent for a greater length of time by its appearance at all times of the year equally, and by the causes being almost invariably some disease, either of the brain or its surroundings, the heart, or one of the main blood vessels supplying the head.

There is a kind of vertigo accompanied or followed by convulsive fits which attacks sows when suckling, generally occurring when the pigs are from two or three weeks to eight weeks old, and affecting only sows that are good mothers, particularly if they have a numerous litter of young. It appears to be caused by the blood becoming too poor in quality from the drain on the system by the large quantity of milk produced.

Treatment.—Feed more liberally; give milk, eggs and syrup of phosphate of iron in the food twice daily.

Whites (Leucorrhœa).—This is a white discharge from the genital organs, caused by a subacute inflammation in these parts, usually the result of injury before or during delivery, a chill soon after parturition, or retention of the afterbirth (cleansing). It occurs in all animals.

Treatment.—Give doses once or twice daily of quinine and dialysed iron. Syringe the womb out with warm water containing infusion of oak bark and a little carbolic acid.

Give good nutritious food and protect the patient from inclement weather.

Wind-Sucking is of the same nature as crib-biting, but in doing this the horse does not take hold of any object, but simply lifts his nose and gives the tongue a twirl.

Yew Poisoning.—It is not an uncommon occurrence in the country for animals to be poisoned by partaking of yew, either by breaking into enclosures or reaching over fences where it is grown, or by its being thoughtlessly placed within their reach, and it not unfrequently happens that animals, particularly horses and cattle, will suddenly eat it, although they have had continual access to it

and have refrained from doing so before ; at any rate, in sufficient quantities to produce illness or death.

Yew appears to exert more poisonous properties in the autumn or early winter than at other times of the year, although it is always very dangerous, a very small quantity being sufficient to kill a horse or cow.

The chief symptoms are drowsiness, and tympanitis (hoven). In fatal cases death takes place in a very short time after the yew is eaten. The carcase of the victim will often be found lying close to the place where it (the yew) is obtained, and occasionally with some still in its mouth.

Treatment.—Large doses of linseed or castor oil, with aromatic spirits of ammonia and whisky frequently repeated. Rouse the patient up continually.

Simple Operations.

Castration.—Most male animals are castrated when young, except those required for stock purposes, and when carefully performed—and other circumstances attended to, such as the state of the weather, affording protection from cold winds, very hot sun, &c., for a reasonable time after the operation—the mortality is, taken on the whole, slight.

Colts are usually castrated, either as yearlings or when two years old, at any time between April and October.

Skilled operators are employed to perform the operation, and this is much cheaper and better than for a novice to undertake the work.

Calves may be operated on at any time between the ages of one week to one year. When quite young the testicles may be drawn in the same way as in lambs, but when older some precaution—such as searing the cord with a hot iron, twisting or compressing the cord—must be taken to prevent undue loss of blood.

Lambs are castrated with the greatest safety when from about ten days to three weeks old, at which age the scrotum (purse) is cut open or the end cut off, and the testicles simply dragged out. When lambs are allowed to become two months or more old, the blood-vessels must be closed in some way after the removal of the testicle, and this is generally done by searing with a hot iron, but it often happens that even when all due care is taken, a few die from the operation.

Pigs.—Young male pigs suffer but little from the operation of castration. They can easily be done when between one and two months old, by simple cutting into the scrotum (purse), squeezing out the testicle, which is drawn rather firmly, and the cord severed as close to the body of the pig as possible.

Dogs and Cats are operated on in a very similar manner.

Spaying (Castration of the Female) requires considerable skill and practice in all animals.

Blistering.—Although "rubbing in a blister" is a most simple operation in itself, it requires an amount of tact and discrimination, which can only be taught by practice, to know how to apply it so that the desired end may be attained.

Animals that have been recently blistered must be prevented—by tying up by the head, putting on a "cradle" or otherwise—from gnawing the part, or a permanent disfigurement is apt to be the result.

The knowledge as to whether or not a blister is likely to be beneficial, in most cases requires for its attainment a great amount of natural ability and practical experience.

Setoning.—Setons inserted in the dewlap of cattle have been in the past, and still are, in some districts largely employed, with a view of preventing such diseases as "blackleg." The operation is a simple and safe one when ordinary care is taken. In disease, a seton should never be inserted except by the advice of the medical attendant.

Firing.—The operation of firing being an extremely painful

one, should never be performed except as a last resource in obstinate cases of lameness or deep-seated and chronic pain, when no other treatment affords relief.

No amateur should ever fire an animal, nor should any animal ever be subject to this ordeal for any whim, or for the presumed relief of any imagined disease, but in all our treatment of live stock it should be borne in mind that although not so highly endowed with nervous sensibility as ourselves, and that (probably) in consequence, they do not suffer to the same extent as we should under similar circumstances, yet they do suffer, and therefore we should endeavour to protect and relieve them from pain whenever possible.

Doses of Drugs.

Tables for regulating the doses of drugs for the various animals, and also for animals of different ages of average size and stamina. Any divergence from these rules is mentioned either when treating of the disease in which it is prescribed or when the dose of the drug is given.

FOR ANIMALS OF VARYING AGES.

Horses.		Cattle.	
From 3 years and upwards	1 pt.	From 2 years and upwards	1 pt.
,, 1½ years to 3 years	½ ,,	,, 1 year to 2 years	½ ,,
,, 9 months to 18 months	¼ ,,	,, ½ year to 1 year	¼ ,,
,, 4½ months to 9 months	⅛ ,,	,, 3 months to 6 months	⅛ ,,
,, 1 month to 4½ months	1/16 ,,	,, 1 month to 3 months	1/16 ,,
Sheep.		**Pigs.**	
From 2 years and upwards	1 pt.	From 1½ years and upwards	1 pt.
,, 1 year to 2 years	½ ,,	,, 9 months to 18 months	½ ,,
,, ½ year to 1 year	¼ ,,	,, 4½ months to 9 months	¼ ,,
,, 3 months to 6 months	⅛ ,,	,, 2½ months to 4½ months	⅛ ,,
,, 1 month to 3 months	1/16 ,,	,, 1 month to 2 months	1/16 ,,

Dogs.

From ½ year to 1 year	1 pt.
,, 1¼ months to 3 months	¼ ,,
,, 3 months to 6 months	½ ,,
,, 20 days to 45 days	⅛ ,,
,, 10 days to 20 days	1/16 ,,

Rule for Doses of Drugs for Various Animals.

As a rule, cattle take rather a larger dose than horses, and sheep and goats larger than pigs. Thus, taking the dose of a drug for a horse to equal 1, the dose of the same drug for a cow would equal $1\frac{1}{4}$, that for sheep and goats $\frac{1}{5}$, that for pigs $\frac{1}{8}$, that for dogs $\frac{1}{15}$, and for cats $\frac{1}{32}$.

Dose of the Various Drugs, &c., Prescribed in this Book.

The average dose for a horse of each drug is here given; doses for other animals can readily be computed from the foregoing tables. When a drug is mixed with others to form a draught, a rather smaller quantity is given.

Aloes, dose for a horse, about ...	5 or 6 drachms
When aloes are given to cattle, 4 drachms are used, combined with Epsom Salts or Glauber's Salts.	
Aconite, Tincture of (British Pharmacopœia)	40 minims
Asafœtida, Tincture of	6 drachms
Areca Nut, powdered...	6 „
Ammonia, Chloride of	½ ounce
Ammonia, Acetate Solution of	4 ounces
Ammonia, Aromatic Spirits of	1 ounce
Acid, Sulphuric (dilute)	2 drachms
Arsenic	5 grains
„ Solution of	½ ounce
Ammoniacum Gum	3 drachms
Brandy...	4 ounces
Belladonna Tincture	1 ounce
Castor Oil	1 pint
Cod Liver Oil...	4 ounces
Cinchona, Tincture of	1½ ounces
Camphor, Compound Tincture of	1 ounce
Colchicum, powdered	1 drachm
„ Tincture of	1 ounce

Eggs	2 or 3
Epsom Salts, not given to horses as a purgative, but sometimes as a febrifuge, in doses of	3 ounces
Epsom Salts, as a purgative to cattle ...	1 lb.
Goosegrease	½ or ¾ lbs.
Gentian, powdered	2 drachms
„ Tincture of	1½ ounces
Ginger, Powdered	2 drachms
„ Tincture of	1 ounce
Glauber's Salts, uses and doses same as Epsom Salts	
Hop Tea	½ to 1 pint
Iron, dialysed...	½ ounce
„ Iodide of	2 drachms
„ Sulphate of and Carbonate of ...	2 „
Ipecacuanha Wine (of), given only to dogs	20 minims
Laudanum	1½ ounces
This dose should not be exceeded for cattle.	
Linseed Oil	1 to 2 pints
Lard	½ to 1 lb.
Milk, new	2 quarts
Mustard, when given internally, about ...	1 ounce
Potash, Chlorate of and Nitrate of ...	4 drachms
Potassium, Iodide of...	1 drachm
Port wine	4 ounces
Pepper...	2 drachms
Quinine, Sulphate of...	½ drachm
Squills, Syrup of	2 ounces
Sweet Spirits of Nitre	1½ „
Soda, Salicylicate of...	3 drachms
„ Hyposulphite of	1 ounce
„ (washing), Carbonate of	4 drachms
„ Bicarbonate of	6 drachms

Sulphur	1	ounce
„ Liver of	2	drachms
Salt (common), Chloride of Sodium ...	1	ounce
Santonine	40	grains
Turpentine	2	ounces

Three ounces may be given to expel worms.

Tolu, Syrup of	2	„
Treacle	1	lb.

Three pounds may be given to cattle.

"Black Wash" is made by mixing ½ dram of calomel (subchloride of mercury) with 13 fluid ounces of solution of lime (lime water).

Diarrhœa Cordial.—Prepared chalk, 2 ounces; catechu, in powder, 1 ounce; ginger, ½ ounce; opium, 1 drachm; peppermint water, 1 pint. Mix thoroughly. One-half this quantity is a dose for a horse; ½ to 1 ounce for a sheep or a calf.

Electuary, for bronchitis, laryngitis, &c., made as follows:—Nitrate of potash and chlorate of potash, of each 4 ounces; powdered myrrh, 6 ounces; extract of belladonna, 1 ounce; treacle or honey sufficient to make the whole into a thick paste.

POULTRY.

Overcrowding and irregular and injudicious feeding are, perhaps, the most common causes of unsuccessful poultry-keeping.

Of course, damp and draughty houses are very prejudicial to the health of fowls, and judicious selection of the breeds and strains for attaining the chief object in view, whether it be quantity of eggs, prime table birds or prize-winning, plays an important part in the financial results of the undertaking.

For egg-producing, the number of hens kept in one run, or roosting in one house, should not exceed twenty. On an ordinary farm, several of these houses or runs can be placed in different parts, and these can be changed as occasion requires.

When ground, whether arable or grass, but particularly the latter, becomes "tainted" (this is when fowls have been continually kept on it for a long period), it should be dressed with gas lime in the autumn and salt in the spring, before putting fresh fowls on to it; this will purify the ground and destroy parasites which are so detrimental to the health of poultry, frequently causing many deaths.

Pure water is essential to the good health of fowls, and for young chickens, water that has been previously boiled is the best.

Food for laying hens should not consist of much highly stimulating food, such as maize, and plenty of green food and road grit, or smashed oyster-shells should be allowed.

For fattening chickens and young fowls, milk, oatmeal, with a little good barley-meal are considered the best.

Common Diseases of Poultry.

Apoplexy.—This disease usually attacks birds that are fed too freely on food that is too stimulating, in hot weather. It is nearly always rapidly fatal, or so affects the victim that it is useless afterwards, both for stock and fattening. Staggering is a symptom of approaching apoplexy. Treatment, when attempted, should con-

sist of cutting the large vein under the wing, and this followed by a small spoonful of Epsom salts given in a wineglassful of water. Keep the patient quiet and on low diet for some time after.

Bumble Foot.—This is by far the most prevalent in Dorkings. It is a gathering at the bottom of the foot.

Treatment.—In early stages, paint with Lugol's solution of iodine, or solution of lunar caustic (nitrate of silver). In bad cases, poultice until the gathering is ripe or breaks ; open it freely with a sharp knife, and apply carbolic acid ointment daily.

Cholera.—This is a very fatal disease, and when well-established is almost incurable ; but diarrhœa from any cause is often called cholera, and this being generally amenable to treatment, persons often claim to have cured attacks of cholera when it is really another simple disease that they have effectually treated. True cholera is due to the presence of a micro-organism, and is very contagious ; consequently if an outbreak of true cholera be suspected, at once destroy all affected fowls ; thoroughly destroy, by burning, the carcases, &c., and disinfect all houses, runs, &c., that have been occupied by the diseased birds.

Symptoms.—Dulness, loss of appetite, great thirst, diarrhœa ; the excrement being at first green and slimy, and as the disease progresses, whitish and frothy ; sometimes streaked with blood, convulsions often set in ; death taking place from exhaustion.

A disease which seems to have made its appearance in this country in 1888 or 1889, resembles true cholera in some respects, being often confounded with that disease. It is, however, totally different, and is even more rapidly fatal, attacking fowls, turkeys and pheasants of all ages, one of its peculiarities being that the better condition the attacked bird is in, the more readily does it succumb to the complaint. Hens have frequently been known to die while on the nest to lay.

It appears to be due to the presence in the bowels, and perhaps the liver also, of a parasitic organism.

Treatment is of little avail.

(I am now making experiments with preventive agents, and the results, all being well, will be found at a future date in the columns of the *Agricultural Gazette.*)

Comb Diseases.—What are generally considered diseases of the comb, are (with the exception of disease from injury) in reality only symptoms of systemic ailments, such as cholera, &c.

Cramp.—This affection chiefly attacks young poultry, and is brought on by exposure to wet and cold, such as damp stone or wooden floor, particularly the former.

Treatment.—Rub the affected parts with a little compound soap liniment, keep the patient dry and warm, in flannel if very bad, and give one or two doses daily of salicylicate of soda in a bread pill.

Crop-bound.—Fowls will sometimes swallow indigestible material, such as matted grass, bacon rinds, &c., that will not pass on from the crop to the gizzard. This causes the bird to be dull, sit about a great deal, and lose its appetite. When handled, a hard mass can be felt in the crop.

Treatment.—Pour a little warm water and olive oil down the bird's throat and knead the mass well two or three times a day; if this does not have the desired effect in two or three days, the crop may be carefully cut open, the offending mass removed, and the wound stitched up with silk, or what is still better, properly prepared antiseptic suture cord. Allow only semi-liquid food for several days after, and dress the wound with diluted Condy's fluid or Sanitas daily.

Take care that the instruments (knife, needle, &c.) are quite clean. It is well to dip them in Sanitas before operating.

Diarrhœa.—Simple diarrhœa is usually caused by unsuitable food or water.

Treatment.—Remove the cause and give about twenty grains of compound chalk powder in bread pills two or three times a day. In severe cases a few drops of Chlorodyne are exceedingly useful.

Egg-bound.—When hens are unable to pass an egg it is be-

cause they have been fed on too stimulating and binding food, or there is an unusually large egg in the passage.

Treatment.—Well oil the vent and egg-passage, using a fairly stiff feather to introduce the oil, and gently press the egg towards the vent.

Egg-eating.—This destructive habit is best checked by filling an empty egg-shell with mustard and allowing the offender to have full access to it; the taste and irritating effects of the mustard cause them to desist from the habit.

Feather-Eating.—This is another pernicious habit, which seems to be caused, either by being fed too much on one kind of food, or from sheer want of something to do.

Treatment.—Change food, and if possible, cause the fowls to scratch for their food by throwing corn among straw or rubbish. Slightly paring back the top part of the beak with a sharp knife will usually stop feather picking.

Gapes.—This complaint is so well known as to need no description. It is caused by the presence of worms in the windpipe. It attacks chickens, young turkeys, guinea fowls, pheasants, and is especially prevalent in damp, warm seasons.

Treatment.—The old fashioned plan of stripping a feather, except at the point, dipping it in turpentine, passing it down the windpipe, twisting it round and then withdrawing it, sometimes with one or more worms attached, answers very well if properly and carefully done, but many people do it carelessly, and so choke or injure the bird, or pass the feather down the gullet or food passage into the crop, instead of down the windpipe, so of course doing harm instead of good, beside which, when a great number are attacked it is a very tedious operation.

In mild outbreaks a little camphorated spirit in the water is beneficial, but of course the difficulty is in getting the sick birds to drink it in sufficient quantities to do any good. The best preparation that I know of is quite a new one, called "ruby cream," manufactured by Messrs. Brewer and Marston, chemists, 105, London

Wall. It is a thick liquid of a pinky colour, and can be either mixed with meal, so that the chickens, &c., will readily eat it, or made into pills to be forced down the throats of those that are too ill to feed.

The fumes of sulphur and carbolic acid have been by some persons greatly advocated as a cure for gapes, and this method of treatment certainly does a certain amount of good in the early stages, but it requires great care, and is often not so effectual as represented, for it must be remembered that in order to kill the worms which are the cause of the mischief, sufficient fumes would be required to cause the death of the bird; it does, however, assist to a certain extent in dislodging them. The same remarks apply to powders, &c., which are diffused by bellows or insufflators.

Ground, where gapes makes its appearance, should be gas-limed in autumn, and salted in the spring, to prevent the development of the worms.

Liver Diseases.—The most important disease which attacks the liver of poultry is tuberculosis (spotted liver). See "Tuberculosis."

Inflammation of Liver.—This is produced by feeding on food which is too stimulating, and is especially prevalent when the weather is very changeable with great variations of temperature.

Symptoms.—Dulness, total loss of appetite, yellowness of eyes, mouth, &c., excrement at first dark and sticky, afterwards pale and clay-coloured.

Treatment.—First give a pill of jalap and calomel. Follow this with a pill night and morning containing gentian and extract of taraxacum. Give plenty of green food, especially dandelion leaves.

Moulting.—This is a natural process and not a disease in itself, but owing to greater susceptibility at these periods diseases often make their appearance then. Prevention from cold, damp, and exposure to draughts, with changes of food, are especially necessary at these times.

Rheumatism is caused by damp, cold, and indigestible food.

Symptoms.—Pain and stiffness when compelled to move, with (often) swellings of the joints.

Treatment.—Same as for cramp.

It is common in old fowls, &c., as well as young birds.

Roup.—This is a fatal and contagious disease, attacking th respiratory organs of fowls, &c.

Symptoms.—The affected bird is dull, sneezes a great deal, coughs, its eyes are red, and a watery discharge issues from its nostrils. As the disease advances, the discharge becomes thicker and offensive, the head swells and there is frequently a rattling sound produced from the throat.

Treatment.—Isolate all diseased birds and thoroughly disinfect all places that have been occupied by them. Give, first a half-teaspoonful of Epsom salts, and follow this with tincture of aconite once or twice each day, and a pill once daily made as follows: sulphate of copper, ½-grain; sulphate of iron, ½-grain (or hydrastine, ⅓-grain); oil of copaiba, 3 drops; liquorice powder, 1 grain.

It is well to dissolve some sulphate of iron and put it into the water of those birds that are healthy, as a preventive.

Scaly Legs (Elephantiasis).—This is easily cured by washing daily with soft soap and water, and afterwards applying a *small* quantity of mercurial ointment, or in slight cases, sulphur ointment.

Tuberculosis (Consumption) "Spotted Liver." — This disease is perhaps more baneful to poultry keepers than any other, for it causes many deaths, is contagious, and affected birds often linger a long time, being a continual source of trouble and expense, beside which they are capable of contaminating other birds the whole time. Pheasant breeders suffer great losses from this disease.

Tuberculosis has now been proved to be due to a micro-organism, and as it can be conveyed from one animal to another, therefore it behoves poultry keepers to take care that no animal

flesh be given whose death was caused by tuberculosis, neither should any person who is the victim of this disease go among poultry, because poultry arereadily inoculated by the expectoration from a person so suffering.

Symptoms.—A gradual wasting, with partial loss of appetite, are the first symptoms. As the disease progresses, diarrhœa sets in, the excrement being pale or white in colour. There is often lameness of the right leg. Death takes place from exhaustion.

Treatment is of little avail when the disease is well pronounced, but in the early stages, cod liver oil, gentian, and dialysed iron may be tried. Plenty of exercise must be allowed and frequent changes of food.

The liver is the chief organ attacked usually, but sometimes the bowels suffer also to a considerable extent. When tuberculosis has once become established in a poultry run the only way of getting rid of it is to clear off all the birds, thoroughly disinfect the roosting places, nests, &c., and sprinkle gas lime about the contaminated ground.

APPENDIX.

The following notes on the various diseases should be read with the matter on the pages specified.

PAGE 14. The Contagious Diseases (Animals) Act is now known as "The Diseases of Animals Act."

PAGE 15. "Anthrax." All domestic animals may become the victims of anthrax.

The symptoms already described in the little book are those which are present in cattle when attacked by this disease.

Sheep present very similar symptoms.

In pigs, when a large quantity of the anthrax virus or poison has been taken, as frequently occurs when pigs have been allowed to drink the blood of an animal that has died from anthrax, death often takes place very suddenly. In milder cases, swelling and tenderness of the throat are prominent symptoms, accompanied by the usual signs of ill-health.

In horses the *ante-mortem* symptoms are decidedly obscure, and when occurring as primary cases, that is, when the disease has not attacked any other animal on the farm or in the neighbourhood for a long time previously, it is very easy for an expert even, to be deceived.

I give the symptoms as they occurred in an outbreak (to which I was summoned a few months since), in a three-year-old mare and an aged gelding, on a small farm, there having been no known case of the kind, either on the farm or in the neighbourhood for several years.

Both animals showed signs of acute abdominal pain. Great prostration and dejection were present in both animals. The fæces were passed freely in both cases, and at the time of my first visit nothing unusual was noticed in the character

of the urine, but I am told that in the case of the aged horse the urine was very dark and possibly contained blood, shortly before death took place.

The internal temperature was not perceptibly altered in either case at the time of examination, which was about fifteen hours before the first animal (the young mare) died.

After death the carcase rapidly became very rigid (stiff) and remained so for several hours.

Some weeks after I learned that in the field adjoining the one in which these animals were pastured when attacked, several years ago a number of cattle had been buried which had died, presumably of anthrax, and as the weather had been very wet, and the field in which these graves were was at an elevation considerably greater than the one in which the horses that were attacked were grazing, it is conjectured that the spores of the bacilli were washed down from these graves in to the adjoining field, and so gained access to these unfortunate horses.

PAGE 19. "Blackleg" caused by the presence in the blood of a specific micro-organism, somewhat similar to but differing from that which is the cause of anthrax.

PAGE 19.—"Tetanus." As a preventive to tetanus occurring as the result of inoculation through an external wound, the subcutaneous injection of "tetanin" within a few hours of the infliction of the injury is now known to be particularly effectual. The injection is made usually either behind lower part of shoulder, or in front of chest.

PAGE 23. "Navel-ill," to prevent, dress the navel-string with carbolised oil or some other disinfectant directly after birth, and once daily for two or three days subsequently.

PAGE 29. "Diarrhœa" (Scour). There is a specific diarrhœa of a very fatal character which attacks calves and lambs, especially the former, usually within forty-eight hours of their birth.

It is very contagious, and the virus or germ (which is a

minute organism) of this disease gains access to the body of the fœtus while still within the womb of the dam, but frequently does not commence to exert its baneful influence until the digestive organs of the young animal are called upon to do their duty in acting upon the first meal of milk, or other food that the calf or lamb receives.

Medicinal treatment for the cure of this form of diarrhœa, when it has fairly set in, is rarely successful, but much may be done in the way of prevention in calves at least, by disinfecting all other cows on the premises that are five months and upwards gone in calf.

This disinfecting process is best accomplished by daily sponging the vulva and under sides of base of the tail with M. Nocard's wash, or some other good well-known disinfectant, and at the same time giving some antiseptic medicine, internally, at least three times each week. Carbolic acid answers very well for this latter purpose and it can be given in the food, thus saving the upset caused by drenching.

PAGE 34. "Parturient Apoplexy" (Milk Fever). The latest method of treatment is by injecting some antiseptic agent, such as iodide of potassium, or solution of chinosol, either into the udder, or directly into the jugular vein, the assumption being that this disease is caused by a virus or poison in the blood, which virus is developed in the udder during the secretion of the first milk at the time of calving, from whence it is absorbed into the blood of the cow.

This method of administering medicine has two great advantages; in the first place it is quickly absorbed into the blood-stream, and consequently is enabled to act directly on the various organs of the body; and secondly, it often saves choking the patient by a careless or ignorant attendant pouring medicine down the patient's throat when she is in a comatose condition and quite unable to swallow.

The results, too, attending this method of treatment are at

least equally as favourable as those following any other mode of treatment.

PAGE 36.—"Tumours in the throat." The majority of tumours or "wens," as they are frequently termed, which occur in the region of the throat and jaws of cattle, are of an actinomycotic nature, and for the cure of these the internal treatment as recommended in "actinomycosis" should be employed in addition to surgical or other external treatment.

PAGE 70.—"Comb diseases" in poultry.

The disease known as "Favus," which is due to the vegetable parasite "Tænia Favosa," attacking the comb, is perhaps the most important.

It appears as whitish spots on the comb, which soon assumes a scaly nature and quickly spread.

It is very contagious.

Treatment should consist of the application of sulphur and sulphate of iron ointment daily to the affected parts until cured.

PAGE 71.—"Egg-eating." To check, fill an egg-shell, after blowing out the contents, w.th about equal parts of mustard and cayenne pepper, and place this where the hen has easy access to it, in or near the spot where she has committed the offence.

PAGE 71.—"Gapes." To cure, strip a feather, except at the point, dip it into a mixture of one part of tincture of iodine with nine parts of glycerine, pass it down the windpipe, turn it round two or three times and then withdraw it.

A mistake is often made by passing the feather down the œsophagus (food passage) instead of the trachea (wind-pipe), in which case, of course, the result is unsatisfactory, as it is in the latter that the worms are located.

PAGE 73.—"Scaly legs." The application of paraffin is a simple, safe, and effectual cure, in ordinary cases. It is better to reserve mercurial ointment for very severe or obstinate cases.

INDEX.

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